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LECTURES

ON THE

THEORY AND PRACTICE OF MIDWIFERY,

DELIVERED AT GUY'S HOSPITAL BY

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LECTURE X.

Duties of the Accoucheur.

WE have now, Gentlemen, to speak of the duties which devolve upon the accoucheur, in the management of a labour; duties which, though few, are by no means unimportant. If, when parturition begins, you make examination of the abdomen externally, you may generally find the uterus clearly enough distinguishable beneath the abdominal coverings, and forming a tumour there both hard and solid. If, further, an examination be made within, frequently one or two fingers may be passed into the mouth of the womb, and beyond this opening you may feel the cyst charged with water, sometimes distinguishing the presenting part. Even where the uterine mouth excludes the fingers, still if you place them between the os uteri and the symphysis pubis, the child may be felt just behind and above the symphysis, through the neck of the uterus, so that there can be no doubt that the woman is in a state of pregnancy: and of consequence, it rarely happens that much investigation of this point is requisite. And yet, now and then, where there chances to be a good deal of pain, resembling that of parturition, but arising from another cause; and where the woman, under error, has supposed herself to be pregnant; the practitioner is called to cases of *reputed* delivery, when, in reality, gestation is not begun. A gentleman once calling at my house, told me, not without earnestness, that he had under care, a case of labour, about which he was very anxious. "The mouth of the womb," said he, "is beginning to open, and I can feel the child, but the patient is somewhat weak, and labour makes but little progress." On my inquiring how long delivery had been protracted,—a few hours, was the reply; and he added, that there was no very pressing symptom. A meddlesome midwifery is bad, I rejoined, therefore it is better to wait, and not unwisely and rashly distrust the best of accoucheurs—Nature—the mother of us all. A day or two passed away, after which, he called on me again, observing, that his patient, still undelivered, was getting weaker and weaker, and that he wished me to give her a visit. On entering the apartment, I saw the woman lying in state, with nurses, accoucheur, and all the formalities attending a delivery; one small point only was wanting to complete the labour, which was, that she should be pregnant (ironically); for although the practitioner, one of the omnipotent class, had distinguished the child's head in the uterus, there was, in reality, no fœtus there. A few hours afterwards the patient died, and on examining the abdomen, we found the peritoneum full of water, but the womb, clearly unimpregnated, was no bigger than a pear; and thus, it sometimes happens, that you are called to reputed deliveries, when, in truth, the patients are not even pregnant; and you may therefore set down as one office, which, in natural labour, devolves on the accoucheur, that of deciding, in dubious cases, whether pregnancy exist or not.

In general, when you are summoned to a labour, there can be no doubt as to the commencement of the delivery. Often you are not called upon till the middle of the process; when you find the womb open, the liquor amnii discharged, and the head of the fœtus approximating the outlet, so that respecting the reality of the parturition there can be no doubt. As women, however, have occasionally *false pains* in the abdomen, sometimes of a spasmodic nature, and sometimes inflammatory, it may be that you are called to a labour supposed to have made some progress, when, in truth, it has not begun. To decide, therefore

in these cases, whether the delivery is commenced or not, is a second duty which devolves upon you; and this you determine, by the following diagnostics. When the pains occur, make a careful examination of the os uteri; and if you find, after a succession of pains, that the mouth of the womb is not merely dilated, but of increasing dilatation,—with a disc, at first, as large as a shilling,—becoming, after a few efforts, as broad as a dollar, such increasing expansion is decisive proof that delivery is begun. Mere openness of the os uteri, however, proves nothing. I know, from personal observation, that the mouth of the womb may admit with facility the entrance of two fingers for a fortnight or more before delivery commences; but when there is not merely expansion, but an increasing expansion of the os uteri, the commencement of the labour may be regarded as certain. But to proceed:

Desirous to know whether delivery be, or not, begun, you must make further observations upon the membranes. If, during the pain, you feel the membranes tense, like an overcharged bladder, and relaxed during the absence of pain, so as to yield readily under the touch of the finger, it may be certainly concluded that parturition is commenced; or should the membranes be uptured, examine the presenting part, which you will find advance and retreat simultaneously with the action and inertness of the uterus, as here shown. Here then are the three principal indications, by which we are enabled to decide, in dubious cases, whether the delivery is begun;—the advance and retreat of the presenting part, the tension and relaxation of the membranes, and, above all, the increasing expansion of the mouth of the uterus.

Other indications of incipient parturition there are, less decisive, but not to be passed without notice: when delivery commences, you will find sometimes an openness of the vagina, and a considerable relaxation of its texture. You will find, too, that the patient has usually the pains described to you before, of a cutting, grinding, and sawing character, returning perhaps every ten or fifteen minutes, or perhaps every twenty. Moreover, when delivery commences, the show frequently issues from the vagina, formerly supposed to be of peculiar nature, but consisting, in reality, of mucus, mixed with a little blood. Lastly, when delivery begins, usually, a few days previously, there is that descent of the abdomen, mentioned in a preceding lecture; the abdominal tumour becoming smaller than it was before. All these, however,—the descent of the abdominal tumour, the appearance of the show, the state of the pains, and the relaxation of the vagina, are to be looked upon as presumptive, not as decisive signs. The tension and relaxation of the membranes, the retreat and advance of the presenting part, and, above all, the increasing dilatation of the os uteri; these are the sole diagnostics in which, in dubious cases, we may confide; and these diagnostics, properly consulted, will preserve you from the folly of needlessly waiting for hours together to make the discovery at last, that labour is not yet commenced, or, perhaps, after all, that the patient is not pregnant. These supererogatory services are not quite so glorious in obstetrics as in theology, though some kind friend is seldom wanting to play the recording spirit, and take care that your merits may shine conspicuously in a familiar page of his register—

"Me Capitolinus convictore usus amicoque puero est, causâque meâ permulta rogatus
Fecit; et incolumis lætor quod vivit in urbe:
Sed tamen—"

"Poor Wilson—poor Tomson—I have a very great regard for him, he is a very clever man, certainly,—a star of the first magnitude, *but*"—every blockhead knows how to round off these periods; and so it is, each succeeding generation seems to contain the moral representatives of those which are gone before it, and, Christian or Pagan, man still remains essentially the same.

When delivery commencing, has made some little progress, you may distinctly feel the expanded os uteri, through which, as the waters gather, the aqueous cyst is bearing, and for the management of this cyst some rule is required. Now there are some practitioners, who are in the habit of bursting the membranes as soon as they can reach them, because they think that, in so doing, they accelerate the labour. While there are others, and I should be disposed to accede to their practice in preference to that of the former, who always leave the rupture of the membranes to nature, as they conceive it improper needlesaly to interfere. To burst the membranes by the finger, instead of waiting for spontaneous rupture, is faulty; first, because the interference is needless and meddlesome; secondly, because this cyst of water is the instrument nature employs, in order to dilate the mouth of the uterus, the opening of which it enters like a wedge, acting on its margin by expansive pressure in the way here demonstrated. On the other hand, it is not wise, in every instance, to commit the rupture of the membranes to the natural efforts; because now and then, in the sixth or seventh month especially, the ovum tends to come away unbroken, like the egg of an ostrich;

and when this is the case, much flooding may occur, and the child will, most probably, be drowned, as it comes into the world, immersed in a bag of water, and may perish like the fœtus exhibited in this preparation. So, again, sometimes, though very rarely, the membranes are morbidly unyielding, firm as a bullock's bladder, and labour may be delayed for several hours in consequence. These are, therefore, exceptions to this general rule of leaving the rupture of the membranes to the natural powers, and the rule, therefore, which I would prescribe, and which, if adhered to, will, I conceive, in general, keep you near the just line of practice, is the following: in general, commit the rupture of the membranes to nature, and, in nineteen cases of twenty, they will yield, and the delivery will do well. If, however, you find that the os uteri is laid wide open, and that the membranes pushing down along the vagina towards the external parts, are not giving way, you may then rupture them; for, no longer of service in dilating the passages, they may retard the birth; or, should the laxity of the parts, or the capacity of the pelvis, allow of their transmission entire, floodings fatal to the mother, and destructive to the fœtus, may be the result. And here let me send you this preparation, consisting of an ovum about seven months of age, unbroken; in this delivery, as I learnt, a very dangerous flooding took place, and the fœtus, instead of growing up to manhood, like Asmodeus in the story, has, for the last twenty years, been incarcerated in this bottle. In labours generally, it is of very little importance, whether the practitioner knows, or not, what is the presentation, because, in general, it is a natural one, and notwithstanding his ignorance, the child will safely enough come away. Nevertheless, as we explained in a preceding lecture, in treating of the passage of the child through the pelvis, it may be that the child lies unfavourably for transmission, and the aids of art may be required. In cases of this kind, an accomplished and scientific accoucheur ought to be prepared to administer the necessary assistance; as, however, he can do nothing till he know the presentation, it is desirable that, in every labour, he should as early as may be, make out what is the part of the child that is lying over the centre of the pelvis, so that he may take his measures accordingly.

There are different periods of the labour at which the presentation may be ascertained; when, for example, the head is about to enter the world, as shown by the apparatus; or when the os uteri is fully expanded, and the membranes are broken, and the cranium is on the point of entering the brim of the pelvis, or when, lastly, the disc of the os uteri, about as large as a shilling, will admit two of the fingers, so that if you make your examination when the womb is quiet and the membranes are relaxed, the presenting part may be easily distinguished. Not to bewilder you, however, with discordant practices, I may observe, that in ordinary cases, it is, on the whole, the best to make the examination at the time commonly recommended; that is, when the mouth of the os uteri is laid wide open (observe the preparation), when the membranes broken, and when the liquor amnii has just been evacuated, then the head of the child, lying naked within the brim of the pelvis, within your reach too, unaltered by compression, you may the more easily recognise it.

Now, in a labour that is natural, and such as I am here considering, the mouth of the uterus being open, the membranes broken, and the liquor amnii just discharged, the vertex of the child may be known by its *roundness*, and its *hardness*, by its sutures, and its fontanels, often by the adjacent ear, and frequently by the hairy growth upon the scalp. To ascertain all this, requires some small share of experience and dexterity, but not much; for with an ordinary share of skill the practitioner may decide easily enough, whether it be the vertex or some other part that is lying over the centre of the pelvis.

In making this examination, you put the woman into different positions, according to the custom of the country where you practice. Of some countries, the accoucheurs make the examination in the recumbent posture; of some, in the sedentary; and among the plebeians in Ireland, the patient is examined on the knees and elbows. For the purposes of British midwifery, however, perhaps the ordinary obstetric position of this country is the most convenient; that, I mean, now demonstrated, in which the woman lies, like this image, on the left side, as near to the edge of the bed as may be; the bosom approaching the knees, the knees advancing towards the bosom, the shoulders forward, the loins posteriorly, the feet, if agreeable, bearing against the post of the bed, when the position being composed in this manner, the first and second fingers of the left hand, as formerly recommended, will be found the most convenient for making the examination.

If you have clearly ascertained that the presentation is the vertex, the principal point of examination in natural labour, perhaps it is better, when you are young in practice, not to disturb the mind with investigations respecting the *situation* of the different parts, unless, indeed, this be done with a view of acquiring from exercise a more complete mastery of examination; for

in ordinary labours it matters little whether you are acquainted or not with the *situation* of the cranium. Every accomplished accoucheur, however, deserving to be considered as an adept in obstetrics, ought to be able by all means to determine this point at once; and when you have attended, perhaps, some hundreds of cases, and paid particular attention to this part of examination, you will find this easy enough. Many accoucheurs fail egregiously, but the fault is not in the art, but in the man; for if we except some few cases, the situation of the head may be readily made out, provided the practitioner, not a mere talker in midwifery, is really a proficient in his art. Now when you are desirous of discovering situation, make it your first endeavour to distinguish the ear, by interposing the finger between the symphysis pubis and the head of the fœtus; and there, if the accoucheur be skilful, and the condition of the labour natural, without difficulty, even in the earlier parts of labour, the ear may be felt. Again, anxious to ascertain the position of the head, examine the ear once more, taking care not to double the part upon itself, observing carefully which is the *flap* of the ear, and which is that part of the ear which is *bound down* close upon the head, for the flap of the ear lies towards the occiput, as the part which is sessile is lying towards the face. But to illustrate: when I examine the head of this model as it lies in the pelvis as at present, I find the detached portion of the ear, the flap, is lying towards the right of the pelvis; whence I infer that the occiput also is lying to the right. I further find, that the portion of the ear which is seated close upon the side of the head, is placed to the left of the pelvis; and hence I learn that the face is lying to the left. So that where you feel the ear, and take care not to displace, and falsify its indications by doubling upon itself, observing respectively those parts which are attached and disengaged, you may make out the situation of the face and occiput with facility and precision. Further, by examining the sutures and fontanels, (an observation never neglected in my own practice,) you may again determine what is the situation of the head. Feeling the sagittal suture, as in this model, you trace it to one extremity, and there discover a fontanel of small size, of triangular shape, and of three concurrent sutures, the two legs of the lambdoidal and the sagittal; well, this part I know by these characters to be the *little fontanel*, and where the little fontanel is, there is the occiput; in this demonstration, therefore, to the right of the pelvis. Then tracing the sagittal suture back upon the other extremity, you find there a larger deficiency of bone; the greater fontanel of rhomboidal shape, with conflux of four sutures, I mean the two legs of the coronal, the sagittal, and the frontal. Now by these characteristics I recognise the *larger fontanel*, seated here to the left of the pelvis, and as the larger fontanel lies near to the face of the child, therefore it is to the left of this pelvis that the face is situated; so that by examining carefully the ear, sutures, and fontanels of the head, in ordinary labours, the position may be discriminated with great exactitude. Sometimes the membranes are ruptured before the os uteri is dilated; examinations may be made in these cases as soon as the finger can be introduced. In ordinary examinations, the position of the patient requires no nice adjustment; but if you would examine with more than ordinary care, the rules of posture already prescribed must be observed. When the vertex is much swelled from compression, it may be confounded with other parts, and more especially with the nates, from which, however, with due care and dexterity, it may be discriminated readily enough by the diagnostics enumerated. Under continued pressure of the finger, the intumescent scalp is gradually dissipated when the sutures and fontanels become clearly distinguishable, or the edge of the parietal bone may be found lying on the margin of its fellow; or some times we have, in a copious growth of hair, a decisive indication of the vertex. These obscurities from intumescence, are frequent in consultation cases, but in cases originally under your care, they must be of rare occurrence, provided you adhere to the rule before enjoined, and make your examinations in the earlier part of labour, as soon as the liquor amnii has been discharged; for before effusion of the liquor, the cranium can be but little compressed.

In a natural labour, the less you interfere the better, and therefore when once the membranes are open and the position of the head is made certain, provided you find the child lying in such manner as not to require assistance, you have in fact little to do beyond merely sitting at the bed side and watching the progress of the head to the outlet. If it be a case of instruction, and you are beginning your practice, then indeed it is proper that you should examine as frequently as may be, without injuring the woman, with a view of learning to recognise the different parts of the pelvis and the head. But if the case is managed, as cases generally ought to be, merely for the comfort and safety of the woman; then the less you examine in a natural labour the better, though it is sometimes necessary, during pain, to feign an examination, lest the patient should fancy herself neglected.

As the head is making its progress through

the pelvis, there is one point to which the accoucheur should attend, and that is, the keeping the bladder duly evacuated. When suffered to accumulate, the urine may injure the bladder by over distention, and in protracted labours, as I have told you already, the back part of the cervix vesicæ may become ruptured and opened into the vagina, of which accident I have now seen two conspicuous cases. In a natural labour the natural efforts are usually sufficient for the evacuation, nor should the catheter, on any account, be introduced unless the natural efforts failing, the accumulation of water clearly requires the operation, and the requisite dexterity and facility ensures its safety. When the bladder is obstructed, the less the patient drinks the better, and, within limits, the more she perspires the better. It is desirable, therefore, that a small diaphoresis should be sustained; and above all, she must not drink copiously, provided the labour be somewhat prolonged.

When under the natural efforts, with little interference on the part of the accoucheur, at length the head of the child comes down into the outlet of the pelvis; then it is that another and very important duty devolves on the accoucheur, this is, the protection of the perineum—a protection which, in some cases, is essentially necessary. If the head of the child be small, or the softer parts relaxed, or many children have preceded, the cranium emerges without difficulty or danger, but if it should so happen that the softer parts are rigid, or the head large, or the outlet of the pelvis contracted, then ordinarily the head comes through in a more gradual manner, advancing, retreating, as ease and pain reciprocate, till gaining progress with every effort, at length the fœtus emerges in the way that this instrument so well demonstrates. Ten, twenty, thirty minutes, or more, this process may occupy; and when, as in first labours, the parts are rigid, defence of the perinæum becomes very necessary, for it sometimes happens that the part is laid completely open, so that the genitals and anus form one common fissure. The method of protecting the perinæum is simply this: I speak of ordinary labour—When the fœtal cranium bears on the labia pudendi and perinæum, dilating these parts as if it would burst forth, let the left hand be laid naked upon the perinæum, so as to be ready for counter-pressure, and get a bearing on the vertex with the right. This done—as a meddlesome midwifery is always condemnable—should the softer parts, during the subsequent pains, appear to be in no danger of laceration, content yourselves with directing the patient to abstain from forcing, and suffer the head to advance; but from the higher tension, it is obvious that rupture is to be apprehended; you must then, though unwillingly, resist the bearing forth of the fœtus, supporting the perineum with the left hand and opposing the progress of the vertex with the right, in such manner, however, as not to delay the emersion longer than the safety of the perineum requires. At this time the woman ought not to urge voluntarily. If the pains are very vehement, rupture of the uterus may occur, if the birth be too long delayed.

When the head is in the world, do not lay hold of the neck and endeavour to draw down the shoulders,—for here, as ever, a meddlesome midwifery is bad. The natural efforts, if fairly tried, will in ordinary labour expel this part of the child; and it is found, that where the efforts are left, in this manner, to expel the shoulders as well as the head, the womb contracts afterwards more kindly and effectually, and the placenta becomes more safely detached. When the child's head is come into the world, therefore, remember that a prudent practitioner ought not to interfere, but must still suffer the uterus to act in its own way, when by the natural efforts the shoulders will be expelled.

It not unfrequently happens in labours, on the whole, natural—perhaps, in one out of five or six cases,—that the umbilical chord is surrounding the neck of the child, coiled round the part once only, or repeatedly, say six or seven times. When the chord surrounds the neck, in this manner, the simplest and best method of detaching it, is to put a finger, or two, into the loop, by pressure dilating it, afterwards laying the chin upon the chest, and bringing the loop over the back of the head, so as to set it at liberty. If you cannot disengage the chord in this manner, you may then open as before, and suffer the shoulders to pass the loop in the way I here show you. If, however, the chord surround the neck two or three times,—and I have heard of one case in which the coils were six, and another in which they were seven in number, the loops being many, you cannot open the chord in this manner, but a better method is to leave the chord round the neck until the body be born, when it may be disentangled with facility.

When the body is expelled, you may lay hold of the child; but be careful not to draw it away far from the genitals of the mother. In general, the umbilical chord of the human female is about two feet long, occasionally much longer; it sometimes happens, however, though rarely, that the chord is unusually short. Now, in such a case, if you were to draw the child away, you would, in fact, make a pluck at the placenta, and if the womb were disposed to

become inverted, this displacement might be produced; or the womb, resisting the impulse, you might partially detach the placenta, producing perhaps a flooding, not without its dangers: so that to preclude these dangers, it is better to keep the fœtal abdomen close upon the genitals of the mother, until you find the chord is of full length. The child in the world, the next office which devolves upon you, is that of tying the umbilical funis; an operation which, perhaps, it might not always be necessary to perform. Because I believe that, in many cases, if the umbilical chord were cut through, and no ligature were applied, such is the well provided contractility of the umbilical arteries, that they would close, and dangerous hæmorrhages would be prevented; particularly if, as in a state of nature, the chord were divided by the *teeth*, as I presume it is among animals when divided by them at all. Nevertheless, as the safer course is to tie the funis, and as this practice is generally adopted, ligatures should always be applied. In tying the chord, you may make use of *two ligatures*, the first at the distance of about three or four finger-breadths from the fœtal abdomen. Close upon the abdomen, the ligature ought not to be applied; first, because a portion of intestine protruding in the way of hernia, might be included in the ligature, giving rise to strangulation; and, secondly, because, the chord being tender, you might, with the ligature cut down into the vessels, occasioning thereby a bleeding, which, as no room would remain for a second ligature, it might not be easy to repress. At the distance of two or three finger-breadths from the abdomen, therefore, the first ligature is to be put on, and the second may be applied about two inches from the first. Of the kind of ligature, it may be remarked, that a small skein of thread or silk will answer the purpose exceedingly well, consisting not of *two* threads only, for these might break or cut the chord, but of several, ten or twelve, for example. When applying, coil the ligature once round the chord, and draw it very tightly, not neglecting this caution, as the elasticity of the funis protecting the vessels, they might by lighter pressure be imperfectly closed, and might show a disposition to bleed. Having coiled the ligature once round the chord, and tied it in a single knot, apply it a second time on the same crease as before, and draw it tightly again, afterwards making a third loop still on the same crease with the preceding, drawing it tightly also, and securing now by a double knot. The first ligature applied in this manner, the second may be put once upon the chord, about two inches from the former and then, the chord being brought under view, you may divide with the scissars, not, however, ambitiously imitating certain great originals in midwifery, of whom some have amputated a finger, together with the chord, and others a portion of the male organ.

The umbilical chord divided, you cover the head with a cap, and, on turning round, you are perhaps surprised to find near you some fair nymph, who presents a woollen texture called the receiver, and to the protection of this lovely vision, of course, the guardian spirit of the child, the much expected visitant, is confided. (Laughter.) Respecting the fit moment for applying the ligature to the chord, a difference of opinion prevails: some advising us to wait till the funicular pulsation ceases, and others recommending ligature as soon as the fœtus enters the world. Not, however, to enlarge tediously upon this subject, I may remark here, that when the child is vigorously alive; breathing, crying, struggling, enjoying the full action of the respiratory and vascular system, I do not scruple to put a ligature on the funis as soon as it comes into the world. On the other hand if I find that the vital actions are very weak, whether from previous pressure on the chord, on the head, or any other part, I delay the ligature until indeed I am obliged to cut it away, in order that I may have recourse to the respiratory apparatus, and the use of the warm bath, of which I shall hereafter treat.

As soon as you have delivered the child to the attendant, you should, in every case, make an examination to ascertain whether there be another fœtus in the uterus. Repeatedly it has happened, that the accoucheur has wished the parent joy, has retired from the room, has even left the house, and yet perhaps as soon as he has crossed the threshold, a second child has made its appearance, to the no small gratification of those classical friends, to whose kind offices I was before adverting. Now in order to avoid so gross an error, you ought, in all cases, as soon as the first child has emerged from the uterus, to ascertain whether there be a second. If, as in ordinary labours, no second fœtus be in the womb, on laying the hand above the symphysis pubis, you distinguish there the uterus forming a mass of varying firmness, in bulk not exceeding much the size of the fœtal head, and when proceeding with the investigation, you examine internally at the mouth of the womb, sometimes the placenta, sometimes the membranes, may be felt—never, of course, the parts of a fœtus. But what if there be a second fœtus in the uterus? Why, in such cases, the womb examined externally, feels as large as in the end of gestation; and when the internal examination is instituted,

the cyst charged with water, or the members of the child, may be distinctly felt. Blood collecting in the membranes of the fœtus, which has been expelled, sometimes simulates the watery cyst of another child; but the issue of clots in place of water, prevents deception here. Water, air, adeps, or a diseased growth of the viscera, of the ovaries especially, may produce abdominal enlargement, confounded by the unskilful with the intumescence from a second child; but the scientific and able accoucheur may, I conceive, always distinguish by grasping the contracted womb externally, or examining the mouth and neck within. Satisfied that there is no other child in the uterus, you may then very carefully wrap up the genitals in well-aired napkins afterwards, bracing the abdomen with a broad bandage applied over the abdomen externally to the dress of the patient, with that degree of tension which may yield a sense of grateful support. Mr. Gaitskell, of Rotherhithe, has contrived a bandage excellently well adapted for this purpose. The bandage may be followed by a cordial composed of one table spoonful of brandy, and three of water, with as much sugar and nutmeg as may agreeably flatter the palate of the patient.

These, then, are the duties, simple and few, which devolve on the accoucheur in ordinary labours. Briefly I shall recapitulate them:—Rarely is it necessary to ascertain whether the woman be in a state of pregnancy; rarely is it requisite to examine whether the delivery be or not begun. With the rupturing of the membranes, the less you interfere the better; they are to be broken solely when preternaturally unyielding, or where there is a disposition in the whole ovum to come away at once. In every instance the scientific accoucheur should make out the presentation. In every delivery it is, indeed, desirable that the situation of the child be discovered, yet this is by no means peremptorily necessary. The best time for examination is on the discharge of the liquor amnii; when the labour is found to be natural, the less we interfere the better. When the head is at the outlet, the perinæum must be protected. When the head is in the world, ascertain whether the chord is on the neck, disengaging it if necessary. When the head of the child is born, in your general practice, leave the expulsion of the shoulders to the natural efforts. When the fœtus is completely in the world, keep it as near to the genital parts of the mother as may be. If the child be vigorously alive, breathing, crying, or struggling, tie the chord soon after birth; but when it is languid, perhaps, wait till the funicular pulsation ceases. Apply two ligatures, one at the distance of three fingers breadth from the abdomen of the child, and the other at a little distance from the former. The ligature in connexion with the child's abdomen, should be applied very tightly, so as to make it more secure against bleeding after the chord is cut through. Cover the head with a cap, deliver the child to the attendants, to be washed and dressed by the nurse, examining the end of the chord, so as to satisfy yourselves that it is secure. Cover the genitals, administer some cordial, ascertain that no other child remains in the uterus—these are your duties.

You will sometimes find that children are *still-born*, as it is called, that is, although they are *not dead*, they don't cry, or manifest other indications of life, and this usually from one of two causes; first, a pressure of the umbilical chord, and secondly, and more frequently, and more dangerously, from compression of the head, contusing the brain, and perhaps producing a fatal apoplexy.

Of the various practices recommended for the resuscitation of still-born children, I may observe, there are two on which I myself place a principal reliance, and which I would recommend you to urge with diligence, not however excluding subordinate remedies, and these two remedies are the artificial respiration and the warm bath. Le Gallois, a distinguished French physiologist, removing the head of the rabbit, secured the vessels of the neck, the animal, after this operation, lying to all appearance dead; but when, after having prepared the trunk in this way, he resorted to the artificial respiration; in a few minutes the heart began to act and the blood to circulate, and throughout the whole muscular system the irritability was renewed; and thus, by means of artificial respiration, though the trunk was decapitated, he could keep it in a state of active vitality for one, two, or three hours; nor can stronger proof be adduced of the efficacy of pulmonary inflation, in renewing and supporting the action of the heart and arteries. In performing artificial respiration on new-born children, I have frequently observed, that while the respiration was continued, the chord pulsated; ceasing to beat in a few seconds, when the operation was suspended, and this repeatedly. These facts admitted, there can, I presume, be no doubt, that when the fœtus is still-born, the artificial respiration should be diligently tried; indeed, if this and the warm-bath fail us, I know of no other resuscitants on which we can confidently rely. In the fœtus still-born, you cannot execute the artificial respiration by pressing the front of the chest upon the spine, and then suffering it to recoil, the way sometimes essayed in the adults. In one case, for fifteen or twenty minutes together, I diligently

operated in this manner, without producing resuscitation; and on examining the child, next day I found that scarcely a particle of air had entered the lungs. Neither can you effectually inflate the lungs, so as to execute the artificial respiration well, by blowing the air into the mouth, not even if you previously open the *rima glottidis* by the insertion of the finger, and close the œsophagus by pressing the larynx upon the œsophagus. The only mode of performing this operation effectually is by means of this small instrument, the *tracheal pipe*, which I think every accoucheur should carry along with him to a labour. The tracheal pipe is a little tube of silver, designed to pass into the trachea, its end closed like a catheter, with a long, broad fissure on either side to give free vent to air and mucus. The closed extremity and lateral openings I prefer, as there is less risk of injuring the delicate membrane of the trachea, if a terminal aperture do not exist. In introducing this instrument there is some difficulty at first, if you do not manœuvre rightly; yet every moment is of the greatest importance, for while you are blundering the child is dying. Now not to detain you needlessly, I may be allowed to observe, that my own method of operating is the following:—I pass the fore-finger of my left hand down upon the root of the tongue and into the rima glottidis, and then using the tube with the right hand, I slide it, as here demonstrated, along the surface of the finger, used as a director, till reaching the rima I insert the tube at the moment when the finger is withdrawn from it, afterwards feeling on the front of the neck whether the instrument is lying in the trachea or the œsophagus. This done, you may take the child into your hands, and from your own lungs you may inflate the lungs of the fœtus, emptying them afterwards by means of double pressure of the hand, on the thorax I mean, and the abdomen, the latter pressure being necessary in order to urge upwards the diaphragm. Operating in this manner, you may execute the artificial respiration with the best success. Five-and-twenty, or thirty, respirations there ought to be in a minute, the new-born child breathing faster than an adult. You may ask me, perhaps, whether it would not be better to use *bellows*? Make the experiment, and you will not repeat the question. When you have performed the artificial respiration for a few minutes, you make your observations on the child. Feel the chord, and you will sometimes have the satisfaction to find it pulsate. The best point for examination is at the very root of the funis, close to the abdomen. You sometimes feel the pulsation there; when at the distance of an inch from the abdomen it cannot be perceived, the arteries being so contracted that they do not admit the entrance of the blood. Examine the thorax, feel the heart, and you may sometimes, through the ribs, obscurely perceive its beating; observe the face, perhaps you find the cheeks reddening — the countenance forming—the lips quivering. When these marks of returning life are observed, pause for a little, and frequently the child will be observed to make a spontaneous effort of respiration; a deep sigh is the first breath it draws; in twenty or thirty seconds it breathes again. Now if on suspending the artificial respiration the heart continue to beat—the chord to pulsate—and the respirations to increase in frequency — further aid from the tube will not be required; but should the pulsation cease in the chord, and the sighs be heard no longer, then your operations must be resumed; and thus repeatedly, as the case requires; at one time you try the natural powers of the child, at another you support the respiration by art. There is yet another practice proper in these cases, which is the use of the warm bath. Procure a capacious vessel to be in readiness, always, when you expect a still-born child; provide also a kettle filled with hot water, and an ewer with cold; mix the waters and bring them to the temperature of 97° Fahrenheit; or perhaps higher, take care that the water is not so hot as to scald the skin. With your own hand you may judge of the temperature, particularly if you have been in the habit of using it thermometrically. Well, then, into this warm bath immerse the child, the face being kept above the water; and occasionally, by this warm bath some little respiration has been restored, even when the artificial respiration has failed; I conceive this, therefore, to be a very valuable remedy. The object of the bath is to excite the system, and especially to procure the circulation of the blood. This bath, however, requires using with some science. Sir Anthony Carlisle, the obstetric *eulogist*, has found, that if he plunge a hedge-hog into water, of the temperature of thirty-eight or forty degrees of Fahrenheit's thermometer, he may keep it submersed for thirty minutes, and, on removal, the animal may survive; but if he submerse it in water of ninety-four degrees Fahrenheit, for eight minutes, it dies. So that the animal seems to drown much faster in warm water, than in cold. Now granting this to be correct, and Sir Anthony is supported by a previous and analogous experiment performed upon the kitten by Dr. Haighton, which, as he ascertained, will drown sooner in warm than in cold water; this principle must be important in managing the bath for the child. When respiration and circulation are proceeding, the

heat by exciting action, tends to support the vital principle; but if neither circulation nor respiration proceed in the bath, the heat tends to exhaust and destroy. And the practical inference I would draw from this, is very important: if you find, on immersing a child in a warm bath, that it neither breathes nor circulates, you ought not to keep it there, for, in so doing, you would destroy; you may leave it in for half a minute, and then take it out and try the artificial respiration again; but if you find it is improving in the warm water, you may let it remain in the bath for five, ten, or fifteen minutes, or more or less. If deemed proper, it would be easy to execute artificial respiration, while the child was in the bath.

Other subordinate remedies there are, which are not to be forgotten. Errhines you may put into the nose—snuff, for example; or you may rub the thorax, strike the nates, or introduce a little brandy into the stomach. For this purpose, put your tracheal pipe into the œsophagus, and, taking about a tea-spoonful of brandy into the mouth, impel it into the child's stomach through the œsophagus. Brandy given by the mouth, in the usual manner, may get into the trachea, and produce inconvenience; wash the pipe before you insert it into the trachea. Never hastily despair of the means of resuscitation. Many a fœtus is laid aside as dead which, by a diligent use of resuscitants, might have been saved. A woman, run over by a stage, was carried into St. Thomas's Hospital, and died in a few minutes after admission. This woman was in the end of pregnancy. By my friend, Mr. Green, I was requested to assist in the Cæsarean operation. In thirteen minutes from the last respiration of the mother, the child was taken out. In fifteen minutes from the last respiration of the mother, I began the artificial respiration. During fifteen minutes longer I continued it, ultimately resuscitating the child completely, and had due care been taken it would probably have been living still. Mr. Tompkins, of Yeovil, a gentleman formerly of this class, very accurate in his observations, used resuscitants for an hour and five minutes by the watch, before obvious signs of life appeared, the child recovering, however, at last, and living, I believe, for some time afterwards.

I send you round these preparations, with a view of showing the rima glottidis, the pharynx, and, generally, the formation of those parts into which you are to introduce the tracheal pipe, in order to inflate the lungs. One is a preparation from the adult subject, and the other from a young child.

LECTURES ON CHEMISTRY,

BY

PROFESSOR BRANDE.

Delivered at the Royal Institution of Great Britain.

Lecture XV.

On Chlorine and its Combinations; Fluorine and Hydrogen.

Gentlemen,—At the conclusion of the last lecture, I informed you that there were some substances which, when immersed in chlorine, burned very dimly, and that there were others which burn in it with great brilliancy; and to day I shall show you some examples of this kind. In making these experiments, however, I shall cover the vessel in which the combustion is effected, in order to prevent the gas from being mixed with the atmosphere of the apartment. Many bodies become spontaneously ignited by chlorine, in which cases, binary compounds result, some of which are possessed of acid properties, and others not, which are called chlorides, as the compounds with oxygen, which are not acid, are called oxides.

Now, here is some copper leaf which I shall introduce into a jar of chlorine; you see that the copper leaf burns spontaneously with considerable energy, in consequence of the great attraction which exists between them, and a chloride of copper is produced. In the last lecture, I adverted to the circumstance of water taking up chlorine, and therefore I said that it could not be preserved in a vessel containing water, for the fact is, that the water takes up twice its volume of the gas, and acquires an astringent taste, and has the power of destroying vegetable colours; it is therefore used extensively in bleaching; not that the pure gas is used for bleaching, but some combinations of it with other materials, which will be afterwards pointed out.

Besides this aqueous solution of chlorine, there exists a crystalline compound of chlorine and water, from which it would appear, that about twenty-six or twenty-seven parts of chlorine are combined with seventy-three or four or five parts of water; or, in other words, that thirty-six parts of chlorine are combined with ninety parts of water. This compound is to be produced by pouring a little water into the chlorine, and you have a crystallized hydrate of chlorine, a combination of chlorine and water, when exposed to cold; a temperature of 32° is sufficient;

but it suffers no change from exposure to the greatest cold, when perfectly dry. Now, in examining this substance, and subjecting it to heat, it was found, that under pressure, the chlorine assumed a liquid state; so that, under a pressure of about four atmospheres, chlorine, which is usually esteemed a permanent elastic body, becomes liquid, from being submitted to such pressure; but in the present state of our knowledge, we are obliged to consider it as a simple elementary body. Its specific gravity is in comparison with hydrogen, as 33.5 to 1; and a hundred cubic inches weigh 75.375 grains.

Now chlorine combines with oxygen, and forms with it at least three compounds, but none of these are of any particular importance. The first is the *oxide* of chlorine, which has an odour less irritating and disagreeable than that of chlorine; it dissolves in water, forming a light yellow solution, and it must therefore be collected over mercury. Another combination of oxygen forms the *euchloride*, which is, as you see, of a bright yellow colour, and is very explosive. It even explodes at the ordinary temperature of the hand, therefore requires to be managed with great caution. The result of this explosion is found to be a mixture of the chlorine and oxygen, in the proportion of two volumes of the latter to one of the former. There is a curious fact in relation to this compound, which is, that although there is an increase of volume resulting from the union, there is the appearance of heat and light. There is, as you here see, a flash of light, a loss of colour, and an increase of volume. It is a curious fact, that it does not support combustion, or rather that the metals do not spontaneously burn in it. Suppose we introduce into euchlorine a piece of copper leaf, it does not burn, you see, but the moment we heat the mixture, and so decompose it, then the copper leaf burns exactly as it would do in a mixture of chlorine and oxygen. The chlorine is the gas which sets the copper in combustion, and the oxygen supports the combustion. A fact which shows the error of the French doctrine, which taught that bodies would not burn without the presence of oxygen. The other two compounds of oxygen with chlorine are acids, and I only advert to them just to mention their composition, as they will be more particularly described by and by, when the compounds which they form will come under consideration. *Chloric acid* is a compound of oxygen and chlorine, in which 36 parts of chlorine are combined with 40 of oxygen, giving 76 chloric acid, or about five proportionals of oxygen to one of chlorine. It may be obtained by passing chlorine through a mix- of oxide of silver and water; but it is not at all an interesting substance in its insulated state. Here is a salt containing this acid, the chlorate, or the oxymuriate of potash, as it was formerly called. There is another salt, to which the term perchlorate of potash or oxychlorate of potash has been given, and from which a *perchloric acid* has been obtained. It is an acid which does not exist independent of water or a base, and has been but imperfectly examined; it is said to consist of 36 chlorine and 56 oxygen, from 92 perchloric acid.

Iodine is the next simple body in the list. It was discovered, in 1812, by a M. Courtois, a soap-boiler of Paris. There are many substances from which it may be obtained, but it is generally procured from *kelp*, which is made by burning a great number of sea weeds. We reduce the kelp to powder, and pour upon it cold water, which takes up the more soluble salts which contain no iodine, we then set the solution aside to crystallize; we obtain by this process common salt principally, but also a few others. The mother liquor is then evaporated to dryness, and saturated with sulphuric acid, which generally requires to be about half the weight of the mass. You then apply a gentle heat to the mixture in a retort, and fumes of a violet colour pass over into the receiver, which being cooled, furnish small crystals of a greyish metallic lustre. The smell of iodine, is somewhat like that of chlorine; like chlorine, it acts upon and destroys vegetable colours; it is a very volatile substance, so much so, that at a temperature of 120°, it begins to rise into vapour, which is of a beautiful violet colour, from which colour its name is derived. Its specific gravity, in the crystalline state, is about 4¼ water, being regarded as 1; but in the state of vapour, 100 cubic inches, weigh 264.75 grains, or, in proportion to air, as 8.775; at a temperature of 300° it enters into fusion. It dissolves with great difficulty in water; one part requiring about 7000 of water for its solution; the colour of the solution is yellow, and the taste peculiar and disagreeable. It dissolves readily in alcohol and æther, and they are, therefore, chosen for medical purposes. What is called a *tincture of iodine*, is a solution of about forty-eight grains of the iodine in two ounces of spirits of wine; ten or twenty drops are taken two or three times in the day. It has gained some celebrity in cases of enlargement of the thyroid gland, which is a common affection in certain mountainous countries, especially in the neighbourhood of the Alps, where it is called *goitre*. If given in too large a dose, it stimulates; producing cough, restlessness, and so on, and must therefore be used with caution. One curious fact, in connexion with the history of iodine, is, that it exists in the ashes obtained by burning sponge,

and you know that that substance has been long celebrated for the cure of goitres; this is, no doubt, owing to the presence of iodine. It is found more in the ashes of the *fucus saccharinus*, than in any other of the *fuci*. There is a test of iodine, which I may just mention to you whilst on this subject, namely, starch. If you make a thick solution of starch in water, and add iodine, the two substances combine and form a beautiful new blue compound, which is very characteristic of the presence of iodine.

The compounds which iodine form with oxygen and chlorine, are not of very particular importance. It forms with oxygen the *iodic acid*, and with chlorine the *chloriodic acid*. The composition of iodic acid is 125 parts by weight of iodine, and 40 parts by weight of oxygen. The chloriodic acid is composed of 125 parts by weight of iodine, and 36 of chlorine, forming 161 chloriodic acid. Some few of the iodates are important, and these will be pointed out to you by-and-by, as they have been introduced into medicine.

Fluorine, the fourth of the substances belonging to this class, I shall now pass over. Its nature will be described, when we consider the properties of the fluor spar. We know but very little of its nature, although it is very active in its combinations. We have as yet no substances capable of retaining it; we shall, therefore, pass it over here.

Simple Inflammable Substances.

We now proceed to the second class of substances, or such as are attracted by the negative electric pole, and are, therefore, *electro-positive substances*. These are, excluding the metals, six in number; namely,

Hydrogen
Nitrogen
Sulphur
Phosphorus
Carbon
Boron

to which may be, perhaps, added sileneum. The metals constitute a very important class of bodies, and these we must take distinctly.

These bodies have been called simple *acidifiable* bodies; because, when combined with one or the other of the bodies last mentioned, they form acids, but this term is objectionable. Most of these are inflammable; two of these are gaseous, namely, hydrogen and nitrogen, the last of which is placed for convenience in the present list, and sulphur and phosphorus are, as you well know, very inflammable.

Now first of *hydrogen*, a term derived from the existence of the gas in water, is copiously obtained with great facility by many simple processes, but they almost all hang upon the decomposition of water, and this decomposition may be effected in a great variety of ways. It may be obtained by acting upon dilute sulphuric acid with iron or zinc, and as hydrogen is not absorbed by water, it may be collected over water, as you see here. Its distinguishing peculiarity is its inflammability; it burns with a pale blue flame, scarcely visible in daylight, and in consequence of this property, it was for a long time called inflammable air. When obtained from the zinc it is not quite pure, but contains a little zinc.

It is necessary that we should ascertain its specific gravity with precision; because being the lightest body, we take it as unity. From a number of experiments which have been made upon it, it appears that the specific weight of hydrogen varies a great deal; but if we take the most correct results, we shall conclude that 100 cubic inches do not weigh more than $2\frac{1}{10}$ grains, so that in proportion to atmospheric air, it is as 0.702. Its remarkable levity is, therefore, one of its striking peculiarities, so that if I were to place a jar of hydrogen in the air with its mouth open, it would all escape, from its being so much lighter than the air. Here is a jar of hydrogen, to which I shall attach a small jet, and light it as it escapes; you see that it burns very faintly, but if I were to mix it with about twice its weight of atmospheric air or oxygen, it would explode with considerable violence. I shall just show you the fact now, but I shall more fully advert to it in the next lecture. The explosion produced is very loud, and you see that water is formed. What is called the electrical pistol, or the inflammable air pistol, is formed upon this principle.

Now although hydrogen is itself inflammable, it extinguishes burning bodies very readily; so that hydrogen, in the common acceptation of the term, is not a supporter of combustion. There are two or three experiments which may be made with hydrogen, depending upon its inflammability and low specific gravity; the first is the production of tones in tubes. Here is a current of hydrogen burning at the aperture of this fine pipe; if I hold a glass tube over it, you will hear a peculiar grumbling sound produced, caused by the rapid passage of the air through the tube. By holding tubes of different lengths over flames of hydrogen, you would have different tones produced; but if we may regard that as a specimen which we have just heard, I imagine that you are not very anxious to have any more of it.

Here is an instrument for producing instantaneous heat, on which I set a great value, since it was made under the immediate direction of Volta; it is called Volta's

air lamp. I have occasionally had this instrument in good use for three or four years together; the electrophorus nerve requiring to be renewed in that time; but they have recently got into some disrepute, from having been kept in damp rooms.

The last application of hydrogen I shall have to touch upon, is the formation of water balances, a very curious but useless sort of thing. In the next lecture we shall proceed to consider that most important combination of hydrogen in the composition of water.

Lecture XVI.

On Hydrogen, and the Composition of Water, and the Atomic Theory.

Gentlemen,—I have first to show you, that when hydrogen and oxygen are made to combine in certain proportions, water is formed. If I burn hydrogen under a bell glass, to which the air has free access, the hydrogen will unite with the oxygen of the air, and pure water will be formed, and this union is found to take place in the proportion of two volumes of hydrogen to one volume of oxygen. Mr. Cavendish, by whom hydrogen was first duly examined, has given you something like a connected account of his labours, in investigating in what quantity oxygen entered into combination with hydrogen to form water, and he arrived very nearly at a correct conclusion. He found that they combined in the proportion of two columns of hydrogen to one column of oxygen; and in as much as the specific gravity of hydrogen is to oxygen as 1 to 16, speaking in round numbers, eight parts of oxygen with one of hydrogen will form nine of water, or, more correctly speaking, that two columns of oxygen, represented by 7.5, with one of hydrogen, form 8.5, the equivalent of water, as you see in this table (pointing to one, which was exhibited to the class): but I hope you will not make any confusion between the columns and weights. So that 100 parts of water will consist of 88.24 oxygen, and 11.76 hydrogen. Now we may again illustrate the formation of water by a synthetical experiment. Here is a vessel sufficiently strong to resist the explosion of the two gases in the proportions before mentioned, we shall inflame them by the electric spark, and we shall find that the result is pure water, equal in weight, as Mr. Cavendish supposed, to the weight of the gases inflamed. Here is a curious chemical relic, in as much as it is the instrument employed by Mr. Cavendish in his experiments, it is a brass cylinder, in which the ignited hydrogen unites with the oxygen of the air, and thus forms water. A great many experiments have been made as to the effect of the electric spark upon mixture of hydrogen and oxygen; but it is not worth while to enlarge upon the subject here, as it belongs to a part of chemistry which we could not expound, if these lectures were extended to fifteen times their prescribed limits. There is another curious fact with regard to oxygen and hydrogen, in as much as under a certain amount of pressure they explode, and, uniting, form water, as was shown by Biot. Now it is necessary, in order to establish any chemical fact of importance, that the experiments should be conducted by way of analysis, and synthesis. In the case before us, we have procured water by a mixture of the two gases of hydrogen and oxygen; let us now see if we can obtain oxygen and hydrogen in similar proportion from water by way of analysis. Lavoisier made a grand experiment upon this subject by means of a very simple apparatus; he took a tube, made of porcelain, and passed it through a proper furnace, so that it could be made red hot, and into this tube he put 100 grains of pure iron wire; with one end of this tube he connected a small glass retort, containing a given quantity of water, and to the other extremity he connected a worm-pipe, by which any fluid that passed over might be condensed. By applying a moderate heat to the retort, he made the water to ascend into the porcelain tube, when it was immediately decomposed by the great heat, and he found by making experiments in this way, that nothing but pure hydrogen issued from the other end of the apparatus; the fact being, that the moment the water came into contact with the red hot iron wire, the hydrogen was given off, and the oxygen united to the metal. He next found, that by putting 100 grains of water into the retort, and treating it in the same way, that the iron in the tube had increased 88 grains by weight, and that the hydrogen liberated, amounted to 11 grains and a fraction, which we shall not dwell upon; but this was a beautiful experiment, and seems to establish the fact, that water is composed of hydrogen and oxygen in the proportions already stated. This too, is a very ready mode of obtaining hydrogen; and when it was supposed that air balloons might be made useful for military purposes, a large establishment was formed at Veidun, in France, for obtaining hydrogen for that purpose. (This experiment was shown.)

Now there are other modes of decomposing water at common temperature, as by potassium; you see that the moment it touches the water an explosion takes place, the oxygen of the water combining with

the potassium, whilst the hydrogen is set at liberty. The hydrogen thus evolved was collected in a large glass tube and examined. Now we find by this experiment, that the metal has disappeared entirely, and that an oxide has been produced forcing common potash, and if we examine the gas liberated, it will be found to be pure hydrogen. With regard to the general result of this experiment, we find that the quantity of hydrogen liberated is equivalent, as far as its relative proportion in the composition of the water is concerned, to the quantity of the oxygen transmitted to the potassium.—Among the first experiments with the Voltaic pile on the decomposition of water, it was found, that gases were liberated at each end of the pile; that hydrogen was evolved at the negative wire and oxygen at the positive. The same experiment had been previously made, but in a very imperfect manner, by common electricity. Now it is only necessary that I should just advert to the general results of these experiments, and in short, I may say, that they all prove that oxygen and hydrogen form water, and that the union of the two gases takes place in the proportion of the two volumes of the one to one volume of the other. The electrical decomposition of water has given rise to a theory respecting its formation different from the one we have adopted; it has been said, that water is an electrical body, and that oxygen is a combination of water and positive electricity, and hydrogen a combination of water and negative electricity; but if one enter into speculations of this kind in chemistry there would be no end to them, and we ought rather to adopt a theory more consistent with the facts before us. It has been supposed that oxygen and hydrogen again give off their electricity, and that water is the result.

With regard to water itself, it is a fluid too well known to require any particular description; it is found in different states of purity, according to the nature of the soil through which it passes, or the nature of the vessels in which it is contained; but it may be remarked, that all common water is impure, and therefore unfit for chemical purposes. River and spring water will contain all the soluble substances contained in the earth, and rain water is also contaminated with common air, and all those substances taken up by it in passing through the atmosphere; so that the chemist is obliged to distil it to obtain it pure, and even then the process must be conducted with great caution.

We are in the habit of comparing the specific gravity of different substances with water, and therefore it is a matter of some importance to determine accurately the absolute weight of a given bulk of water. It has been ascertained that, at a temperature of 40° of Fahrenheit, which you will recollect is the maximum density of water, a cubic foot weighs 999 ounces and $\frac{940}{1000}$, which is so near 1000 ounces, that in general, perhaps, we may say that, in round numbers, it will weigh a 1000 ounces. The cubic inch will weigh 252 grains and $\frac{252}{1000}$ of a grain. Of course as we increase the temperature of the water we diminish the weight of the same volume, but the numbers I have mentioned are taken at its maximum of density. At a temperature of 32°, under common circumstances, it assumes a solid form, which is attended with an increase of bulk, and therefore it becomes specifically lighter. At 212° it boils, and, under common atmospheric pressure, is then converted into steam, a hundred cubic inches of which weigh only 19.062 grains, being to air as 1 to 6.318, and is therefore, as you see, very much lighter. Compared to hydrogen, the weight of an equal bulk is as 9 to 1; the same bulk of steam being nine times heavier than hydrogen gas. About 1800, I believe, is the bulk of steam to water; one bulk of water being equal to eighteen hundred of the same bulk of steam, and we are now speaking of it at common atmospheric pressure.

It has been doubted whether water is compressible, but it would appear from some experiments of Mr. Perkins, that, under very great pressure, it does undergo a slight diminution in bulk. It enters into a great variety of combinations, and is indeed one of the most important substances with which nature presents us. It unites chemically with some bodies, constituting their water of crystallization, and contributing to their regular form and transparency; and it forms such an intimate union with some bodies, as with lime and potash, as to be separated from them with great difficulty, even at a red heat, especially from potash, in which cases it may be considered as one of the constituents of these bodies, as it exists in them in a definite proportion. Independent of other substances, water always contains air, and it is very difficult to separate the air entirely from it; you may do so to a great extent by boiling it for a long time, or by placing the water under the exhausted reservoir of an air pump, but the moment it is exposed to the atmosphere it again takes up, a property which is of great importance in nature, as it affects the lives of aqueous animals and plants.

Having stated to you the composition of water, you are in possession of the main data on which we shall found our theory of *chemical equivalents*, or the *atomic theory*, as it

has been called, which I shall now briefly describe to you. In the first place we refer the weights of all bodies to hydrogen, because it is the lightest known body; and if we say that hydrogen is 1. we represent the weights of all other bodies by multiples of that number; and it has been found by Dr. Prout that the weights of bodies so nearly approach to whole numbers, that we might, without much danger, adopt such modes of numeration. For example, *hydrogen* we agree to call *unity*, and we search for the number to represent *oxygen;* to determine that number, we take water, and we find that one part, by weight of hydrogen, is combined with eight parts by weight, or atoms, of oxygen, and therefore we say that 1. will represent hydrogen, and 8. oxygen; and that, consequently, 9. will represent water. So that, carrying this in our head, when water is put before us, we say that nine parts of water is constituted of eight parts oxygen, and one part or atom of hydrogen; and at present we will not trouble ourselves with volumes. Now, the next substance we meet with is *chlorine*, so, in order to arrive at a knowledge of the number which may represent chlorine, we prove exactly in the same way as we did with oxygen. We have to determine what is the smallest quantity of chlorine that will combine with one part by weight of hydrogen, and we find that it is 36.; accordingly, we say that 36. is the equivalent or representative number of chlorine, and this statement is founded upon the analysis of muriatic acid, in which one volume of chlorine combines with one of hydrogen, but the weight of the chlorine is 36 times that of the hydrogen: we say, therefore, that muriatic acid is represented by the number 37., and that it is compound of 36 parts by weight of chlorine, and one part by weight of hydrogen. *Iodine*, which is the next of the supporters of combination on one list, is found to enter into combination with hydrogen, in the proportion of 125 to one, to form the hydriodic acid. We say, therefore, 125 is the equivalent or representative number of iodine.

There it is laid down as a remarkable fact that when bodies unite in more than one proportion, that the second and third compounds are always simple multiples of the first. You have been already told that oxygen and chlorine unite in definite proportions, and they do so to form three distinct compounds; and here is a table in which these combinations are put down. You will bear in mind that water is composed of one proportional of oxygen and one proportional of hydrogen, and that the relative weight of these proportionals or atoms are to each other as 8 to 1. Recollecting then this fact, you see here that the first combination of oxygen with chlorine forms the oxide of chlorine, which is represented in the table, as composed of one proportional of chlorine 36, and four proportionals of oxygen 32, and that the equivalent number of the oxide is therefore 68; the four proportionals of oxygen being exactly equal in total amount to what may be shown to be produced by the simple multiplication of the first proportional; 4 times 8, yielding 32. In the next combination, the oxygen unites with the chlorine in the proportion of 5 to 1; the quantity of oxygen will be therefore represented by 40, and the chlorine 36, giving 76 as the representative of chloric acid. In the perchloric acid seven proportionals of oxygen are united to one of chlorine, and the numbers are oxygen 56, chlorine 36, giving 92 as the equivalent numbers of the acid. And you will find in any series of compounds that the proportions of the elements of numbers are retained; the compound being some simple multiplier of the first, which is a considerable advantage to the chemist, independent of others, which this method of calculating holds out. I might go on to offer you some further illustrations of this subject; but I believe I shall leave it at present, only urging you to mark the difference between volumes and weights, as we shall have continually to revert to these terms.

We may now then form some idea of what happens when hydrogen and chlorine are brought into contact with each other; and I shall first show you that chlorine supports the combustion of hydrogen; you will see that in point of fact the two gases combine with each other, and if carried into the rays of the sun an explosion would take place, and the result would be an equal volume of muriatic acid gas. I shall now burn together a volume of hydrogen and a volume of chlorine, in the same apparatus as I before burned oxygen and hydrogen, and you will find that they will explode, and that a quantity of muriatic acid will be formed equal in bulk to the bulk of the gases employed; and that an acid gas is thus formed, you may readily see by its action upon the vegetable colour contained in the water beneath.

We must defer the further examination of muriatic acid, and the other combinations of hydrogen, until the next lecture.

FOREIGN DEPARTMENT.

The following account of the electric organs is taken from Dr. How's Translation of the first volume of Rudolphi's Physiology. Although we are sorry to find that the translation is not altogether free from inaccuracies, still it contains a mass of information interesting to all classes of medical men, and we sincerely hope the translator, ere long, will favour us with the continuation of the work :—

"The *electric organs*, or, as they were formerly denominated, the *corpora falcata*, of the torpedo marmorata and ocellata, are very easily known. On each side, near the scull and gill, there is placed a body, which consists of many hundred prisms of from three to six sides, which stand perpendicularly to, and close on, each other, extended from the skin below to the skin above, and bound firmly to it by cellular membrane, which are as so many voltaic columns. If we examine these in a specimen which is fresh, or preserved in spirit of wine, we observe each prism to consist of a tube surrounded with nerves and vessels, with their membranous walls, in which are found a great number (according to Hunter, 150) of thin plates or partitions difficult to separate, and arranged in horizontal layers on one another, with an albuminous fluid contained between each. When the columns are, on the contrary, quickly dried, the plates are not only seen more distinctly, but may be easily separated, and do not appear to form any tubes, while the surrounding cellular membrane alone preserves this appearance. Todd considers the tubes as quite cylindrical, and that they have the appearance of corners merely as the consequence of the appending cellular membrane; but this is evidently wrong. Girardi describes them also as six-cornered generally, and now and then five and four-cornered. Three large nerves are given off on both sides to these organs, dividing equally into parts, so that they penetrate the tubes horizontally, and are entwined around them in such a manner that each plate seems to receive its nerves as its vessels. In many of the prisms, connexions between their nerves may also be pointed out. All the three principal branches, before they reach the electric organs, give off smaller branches to the gills; the first of these is certainly to be considered as the fifth pair of nerves (*par quintum s. divisum*), the second and third as the tenth (*par vagum*), as is done by Cuvier (Leçons, T. V., p. 268.), except that he considers three branches as given off from the vagus to the organ, without taking observation of their earlier connexion.

If the electric organs of the torpedo cannot be denied to be batteries of voltaic columns, then those of the gymnotus electricus, on the contrary, must be considered as a very numerously compounded trough. On each side there is a larger superior organ, and an inferior smaller one. Each commences immediately behind the head, under the large muscles of the back, where it is obtusely round, and runs along towards the point of the tail; towards the spine it is plane, or somewhat concave; externally it is convex; superiorly it runs into a sharp border; inferiorly it diminishes, and is strongest in the middle. It consists of horizontal membranes, situated about the third part of a line from each other, and extending along the whole length; between these we find perpendicular laminæ arranged from within outwards, bound firmly to them, and dividing them into right angles: they are very closely arranged on one another, and contain water in the small cavities which are formed by this arrangement of the laminæ. Under this larger organ there lies a smaller one exactly similar to it, which is still more minutely divided, and which, where it borders on the other, is only separated from it by a horizontal wall, while at the sides of the fish, on the contrary, the organs diverge in order to afford space for the interposition of muscles. In the specimen which I have before me, the intercostals on each side, 224 in number, pass off at the inside of the organs; they are then immediately divided, and pass over all parts of them, so that their branches spread from before posteriorly, and inosculate with each other; but the fine ends of the intercostal nerves, under the smaller organ, pass to the skin, and here they form fine and uninterrupted net-works, which cover the skin through its whole extent. A large twig, which is given off from the third branch of the fifth pair, and is increased by a smaller one from the par vagum, passes posteriorly near to, and parallel with, the spine, from before quite down to the tail, passing directly over the intercostals (crossing them at right angles), and no where uniting with them, but distributing its twigs to the muscles of the back. This is the nerve which Hunter considered as the par vagum, and which Fahlberg improperly denominated the par electricum.

"The organs of the torpedo and gymnotus electricus agree in this, that they exhibit tubes or foramina, with which their laminæ form right angles, and the interme-

diate spaces of which are filled with a fluid. They differ, however, in respect to the breadth and length of their organs, which, in the gymnotus electricus, are likewise firmly bound together at every part, while the prisms of the torpedo, and their transverse laminæ, have a loose connexion; the supply of nerves is very great in both, but in the torpedo it is proportionably greater."

SWIM-BLADDER IN FISHES.

The communication of the swim-bladder in certain fishes with the internal ear, tends to confirm, instead of contradicting, the character assigned to that organ as an imitation or rudiment of the lungs of the superior animals. Where the eustachian tube exists, it forms in the same manner a communication between the cavity of the ear and the respiratory organs. On the other hand, the lungs in the proteus form merely two membranous sacs without any cells, whilst in certain serpents the structure is still further simplified by the exclusive development of one lung, the other remaining in a rudimentary state. In the proteus, again, the closed state of the swim-bladder in other fishes is very nearly imitated, the bronchi into which the trachea divides before it enters the lungs being so small that the action of alcohol is sufficient to render them totally impervious to the passage of air.—(*Weber, de Aure et Auditu.* p. 89.)

INSTRUCTION OF THE DEAF AND DUMB.

Since the example and the success of the Abbé de l'Epée awakened the public interest in behalf of the deaf and dumb, numerous establishments have arisen, formed after his model. The art, however, which his genius created, is still far from having attained that degree of perfection which might have been expected, from the labours of so many able instructors. Even the true principles of tuition are not yet agreed upon. Each school has its own method, and even in the same school, the teachers often pursue a different system.

In order to concentrate the scattered facts which bear upon this important subject, a centre of communication was wanted, which might reflect a steadier light on the different branches of instruction; and for this purpose a Journal has been established, in which will be embodied, 1st, all the observations collected during a long experience, or which have been communicated by parents or teachers, on the moral and intellectual state of the deaf and dumb *before* their instruction, and on the development of their faculties, in their ideas, language, and education.

2dly. A comparative estimate of the various methods hitherto employed for the instruction of the deaf and dumb, and notices of the various works published in France or in foreign countries on the same subject.

3dly. An historical notice of all the schools of the deaf and dumb which are known to the editor, and of the most celebrated teachers.

4thly. An exposé of the various methods which seem best adapted, from their simplicity and effect, to promote the object intended.

In short, nothing will be neglected at all bearing on this subject, which touches on some of the most interesting questions in philosophy, morals, and even legislation.

It is hoped that this Journal will remove the obstacles which have too long impeded the progress of the instruction of the deaf and dumb, and that it will contribute to improve and diffuse the practice of an art whose object is to restore so many thousands* of unfortunate beings to the blessings of social life, and the consolations of religion. Eight numbers of the Journal have already appeared.—*Foreign Quarterly Review.*

WESTMINSTER MEDICAL SOCIETY.

To the Editor of The Lancet.

Sir,—In the report of the debate at the Westminster Medical Society, in your last Number, you have mentioned my name, and misconceived my sentiments, in respect to The Lancet. All that I contended for, at the Society, was, *that reports of the debates, if given at all, should be given accurately.* What I said, was rather intended to excite the attention of your reporter in regard to *future* debates, than to convey any censure of the principle on which your Journal is conducted, which I think useful, as it advocates the improvement and candid advancement of medical science, and opposes the spirit of monopoly and of empiricism.

With respect to the publication of my own speeches, as I have no pretensions to any talent for *oratory*, I cannot flatter myself that The Lancet should think them worth reporting. But I do not wish that The Lancet should represent me as hostile to the *press*, or to the most free discussion, and publication of whatever may be said relative to medical or surgical science, in the Westminster Medical Society.

I have the honour to be, Sir,
Your humble servant,
P. Sheil, M.D.

34, St. James's-street,
Dec. 10, 1827.

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* It is calculated that there are upwards of 80,000 deaf and dumb in Europe alone.

THE LANCET.

London, Saturday, December 15, 1827.

We have already stated, that we have no very precise notion of the principles or pretensions which distinguish the different classes of belligerents among the *pure* physicians. It is not every *Pure* who has the simplicity to unveil his purity, and let us into the secret of his pretensions, like Dr. Uwins. Even in the intellect of *Pures*, as in the relations of infinitesimals, differences may be detected. Mind, like matter, is infinitely divisible, and as it requires a peculiar constitution of intellect to give birth to such a declaration of principles as that upon which we commented last week, it may be said that it is not fair to infer from a case of extreme imbecility, that the whole class of *pure* licentiates are as chaste as Dr. Uwins. Other *Pures* may not be equally immaculate; other *Pures*, though they may have vowed to be as obdurate as Dr. Uwins, may have been more frail, or less fortunate, than the Doctor in escaping importunities, and may not have had the virtue to refuse an actual invitation to meet a surgeon on a medical case.

But the follies which disgrace, and the feuds which distract, the different classes of physicians, are of no further importance than as they serve to throw light on the state of the medical profession, and to furnish additional evidence in proof of the necessity of a reform. If the *pure* Licentiates contend that they have a stronger claim to the public confidence than the *pure* Independents, inasmuch as they have undergone the ordeal of an examination from which the *pure* independents shrink, so far, we are ready to admit, they occupy a better position than the Independents. The examination which the licentiate undergoes before the College of Physicians is, no doubt, a very inadequate test of competency; but still it is, *pro tanto*, a security to the public that the licensed practitioner is not wholly incompetent, since it is the interest of the College not to admit too great a number of licentiates, and candidates are, in point of fact, sometimes rejected. Now, in the case of the Independents, or the practitioners possessing a mere Scotch diploma, the public have no security whatever for their competency; for the diploma has either been obtained at a Scotch university, which grants its certificate of ability for the sum of fifteen pounds, or it has been obtained at a Scotch university where, although its degrees are not granted without an examination, it is the interest of the examining body not to reject candidates, and where, in point of fact, candidates are seldom or never rejected.

We are not now considering the question whether the examiners of candidates for a medical degree ought to have an interest in limiting the number of practitioners—though we may observe, in passing, that it is better for the public that they should have an interest in rejecting some, rather than in admitting indiscriminately all the candidates who present themselves—neither are we discussing the question, whether the College of Physicians ought, or ought not, to have the power of licensing medical practitioners. What we maintain is, that, constituted as the profession now is, the public have some, though a very inadequate security for the competency of a licentiate; whereas, they have none whatever for that of the mere possessor of a Scotch diploma. In several instances, some authentic details of which are in our possession, incompetent candidates, for a license to practise, have been rejected by the College. The power of rejection, therefore, possessed by that body, has been so far beneficially exercised, while, on the other hand, it is not likely to be abused, for the only reason which renders the abuse of power, in the hands of any

man or set of men, improbable, namely, that it is not their interest to abuse it. We are curious to know whether, during the last ten years, any, and what number of candidates for medical degrees have been rejected, even at those Scotch Universities which do not avowedly grant testimonials of ability for a small pecuniary remuneration; and our curiosity is likely to be gratified, for we believe that, in the next session of Parliament, a motion will be made for a return of the number of physicians and medical practitioners in England, who have graduated at Scotch Universities, distinguishing those who have bought their diplomas at Aberdeen and St. Andrew's, from those who have graduated at Edinburgh and Glasgow; also a return of the number of candidates for the degree of M.D., who have been admitted or rejected at the two last-mentioned universities, during the last ten years. It is evident that some incompetent persons must have presented themselves for examination at those universities, during the last ten years; but if it should turn out, that none have been rejected, the testimonials of competency granted at Edinburgh and Glasgow, will afford as little security to the public, as those which have been openly sold for fifteen pounds at St Andrew's and Aberdeen. In fact, there is so little practical distinction between the medical graduates of different universities, that the very title of "doctor" has fallen into contempt, and one M.D. is as good as another, as the wife of a knighted alderman makes as good a lady *on the Continent*, as a countess in her own right.*

We are aware that the language of the Independents is this; "we do not shrink from examination, but we question the authority of the College of Physicians, and we will not abandon our principles." The plain answer to this is, that the public care not a jot about the lofty pretensions of the Independents; all the public look for, is some satisfactory evidence of their professional competency. "I asked," exclaimed a Scotch Laird, who inherited the pride and the poverty of a long line of ancestry, "for the loan of fifty pounds, and the plebeian *at* whom I asked it, had the meanness to talk of security!" Such is the illiberality which the Independents must expect to encounter; they ask the public to intrust them with their health and lives, and the public are ungenerous enough to require security.

But we have *pure* surgeons, as well as *pure* physicians; and what are the characters by which these immaculates are distinguished from other surgical practitioners? Do they elude classification, like some of the *pure* physicians? or are they easily distinguishable from the sound body medical belonging naturally and obviously to that corrupt, Augean excrescence, the medical *rump*? It may be observed, in the first place, that the law does not recognise any distinction between *pure* surgeons, and the great body of surgical practitioners; the distinction, therefore, whatever it may be, is of their own creation. Are we to understand *pure* surgery in the sense in which we distinguish *pure* mathematics from mathematics as connected with and applied to the branches of natural philosophy? Do the Pures profess a kind of surgery in the abstract? a species of surgery, uninformed by the spirit of kindred sciences, and unconnected with a knowledge of pathology or therapeutics? If the phrase were used in this sense, we could, undoubtedly, point out many a *pure* surgeon, who possesses indisputable claims to the distinction, and who could no more be accused of bringing any collateral information to the prac-

* Some years ago, an ex-mayor of London dazzled the natives of Stuttgard, by wearing his civic gold chain, and was taken for a peer of the first water; the same worthy person afterwards went to Paris, and added to the name on his visiting card, "*feu Lord Mayor de Londres*," but he was of an *em bon point*, which reassured the Swiss porters.

tice of his art, than a cooper, or a cartwright is chargeable, on the average, with an overweening addiction to the study of dynamics. But the purity of this class is, we suspect, explicable on a more simple hypothesis, and resolves itself into a mere affair of pounds and shillings. A *pure* surgeon is one who holds out to the public, that he is ready to prescribe, but not to dispense, medicine to his patients, and that he expects the sum of twenty-one shillings for every prescription or visit his patients receive from him, saving, moreover, the right which the law gives him, of bringing his action in case of non-remuneration, or what he may deem inadequate remuneration for any operation he may perform. It is evident that there is no limitation as to the time at which a member of the College may call himself a *pure* surgeon; a veteran retailer of drugs, who may happen also to be a member of the College, may, at any time, shut up his shop, and declare his purity, or purity may be professed immediately after a student's examination and admission. The ratio of the *soi-disant* Pures, to the great body of English surgeons, is about one to three hundred; supposing, therefore, that this class is, to a man, hostile to the cause of medical reform, its hostility will not be of the smallest practical importance.

We of course restrict these observations to the *soi-disant Pures* of the surgical profession. We admit that men who have attained great eminence in their profession have a right, in effect, to make their own terms with the public; and that superior ability in the medical, as in all other professions and pursuits, is entitled to superior remuneration. But the fact is, that, in the surgical profession, the superior remuneration is claimed by men who are not entitled to it on the score of ability, but whose pretensions are founded on the holding of offices, for which they are indebted, not to their professional merits, but to the influence of corruption. Let the public look, for instance, at the manner in which hospital surgeons, for the most part, obtain their situations, and decide whether it is possible that fair play can be given to the development of the average amount of talent that might, under a different system, be fostered in those institutions. Sir Astley Cooper on one occasion publicly declared, that there was not a hospital surgeon at St. Thomas's and at Guy's, who was not either his nephew, or his niece's husband, or connected with him more or less closely by ties pecuniary or domestic. What are the consequences of a system which is thus unblushingly admitted to be founded in corruption? Our hospital surgeons are not only inferior to men holding similar situations in other countries, but they are below par, in point of professional information, as compared with practitioners at home. Some of them are the laughing-stocks of their assembled pupils; some few of them acquire considerable dexterity in the performance of particular operations; but we repeat, that as a body, they are below par in point of professional information, and know less of pathology, less of the nature and treatment of disease, than the mass of general practitioners. Yet these hospital surgeons are Pures *par excellence*. If there be one English surgeon more entitled than another to any distinction that may be due to superior professional attainments, it is Mr. Lawrence; but this eminent individual scouted, it will be recollected, at the general meeting of practitioners, the designation of *pure* surgeon, and identified himself with the great body of the Surgeons of England.

We may further observe, that the remarks above made on the different classes of physicians, are to be understood as applying only to the *Bats* and *Pures* of those classes. We do not deny that there are many able practitioners among the possessors of Scotch diplomas; but we contend, that the possession of such diplomas is, of

itself, no evidence of competency; that, when the medical profession is established upon a sound basis, no man should be admitted without the test of competency furnished by an *efficient examination*, and that such an examination should be the sole condition of admissibility.

A Manual of Surgical Anatomy, &c. By H. M. Edwards, D. M. P. Translated, with Notes, by William Coulson, Demonstrator of Anatomy at the Medical School, Aldersgate-street. 12mo. pp. 427; Simpkin and Marshall.

Surgical anatomy, or the application of our knowledge of the parts of the human body to the practice of surgery, has been hitherto, for the most part, only incidentally taught in the medical schools of this country. It has been usual for teachers of anatomy to touch occasionally on this subject, and it is of course necessary for lecturers on surgery to dwell with some minuteness on the parts concerned in the principal operations; but few attempts have been made to teach surgical anatomy, or the anatomy of regions, as this science has been termed on the Continent, in a separate or distinct course. The method of teaching anatomy according to regions, instead of systems of the body, more particularly with a view to practical points of surgery, was originally suggested, and partially carried into effect, by Mr. Allan Burns, and Professor Colles of Dublin; but the more full development of this plan by M. Velpeau in his large book entitled, "Traité d'Anatomie Chirurgicale, ou Anatomie des Régions," and others, has given an opportunity to the continental writers to appropriate, as is usual in these cases, the merit which belongs to our countrymen. In the work before us, Dr. Edwards, who is well known as an English physician residing in Paris, and an ingenious physiologist, has completed the design left imperfect by Colles and Burns.

The author has divided the body into seventeen regions, each comprehending a minute description of the parts comprised in it, according to their natural arrangement. The structure, which has been commonly too much neglected by writers on anatomy, although the influence it exercises on various diseases, renders it highly deserving of being studied, has been uniformly described with great accuracy and minuteness by Dr Edwards. We may quote the description of the fascia of perinæum as an instance of the attention which the author has devoted to this part of the subject, as well as of the practical advantage which may be derived from careful investigation of the minute structures of the body.

"The *superficial fascia* is continued behind the scrotum, as a thin layer of cellular tissue. On the median line, it is entirely deprived of fat, and loosely connects the integuments to the subjacent parts. Laterally, it is thicker, and is attached to the rami of the ischia. Around the anus, it can scarcely be distinguished, for the fibres of the external sphincter muscle adhere very closely to the skin. Behind this muscle, the superficial fascia forms on the median line a small band, which extends from the posterior point of the sphincter to the extremity of the coccyx. Laterally, the subcutaneous cellular tissue becomes looser and thicker, and forms along the whole extent of the nates an elastic cushion, which contributes in great measure to give to this eminence its round and projecting form. From this arrangement, it happens that the tumours which develop themselves in this part, may acquire a considerable size, without causing ulceration of the skin, and that the collections of matter in this part rapidly extend to the perineum and thigh, unless they are early opened. But the external sphincter muscles prevent the separation of the skin in the immediate neighbourhood of the anus, as well as the formation of abscesses in this part, unless they are extremely small and circumscribed.

"Immediately beneath the cellular layer of which we have been speaking, an aponeurotic membrane is situated, the thickness and appearance of which vary considerably in the different parts of this region. Anteriorly, it gradually degenerates into cellular tissue, and is lost on the scrotum

and the fibrous covering of the corpora cavernosa. On the lateral parts of the perineum it is inserted into the rami of the ischia conjointly with the erectores penis. Lastly, a little beyond the posterior edge of the transverse muscle of the perineum, this cellular aponeurotic layer, which may be called the *perineal fascia*, is continued into the *recto-urethral aponeurosis*, which is situated at first deeply in the perineum, then becomes superficial in this point, and covers the inferior surface of the levator ani muscle. The posterior or anal portion of this aponeurosis is very thin, and almost cellular; it sends a great number of white filaments into the fatty cellular tissue on the edge of the anus, and passes beneath the sphincter, to be attached to the rectum. Laterally, it is inserted into the ischium and the falciform edge of the sciatic ligament, forming almost a right angle with the pelvic aponeurosis. This aponeurosis thus lines the whole inferior portion of the pelvis, and presents several openings for the passage of the subcutaneous blood-vessels; that through which the superficial artery of the perineum, its vein, and nerves pass, is the most important, and is situated near the outer edge of the posterior extremity of the transverse muscle of the perineum.

The following observations on dislocation of the scapular extremity of the humerus, are deserving of attention:—

"Dislocation of the scapular extremity of the humerus may take place forwards and backwards, but not upwards, excepting in a consecutive manner. Dislocation downwards is the most frequent, although the elevation of the arm may be carried to a great degree without the head of the humerus being entirely removed from the glenoid cavity, owing to the vertical direction of the great diameter of this articular surface. It appears that the contraction of the muscles is sufficient to produce this accident; but, in general, it depends on their action joined to that of an external violence, which is most frequently communicated to the elbow during its separation from the body, and whilst it is resting on a solid surface. In fact, if, in a case of this kind, the pectoralis major, latissimus dorsi, and teres major contract with force, they would not move the elbow, as this part rests on the ground, and, consequently, the superior extremity of the humerus would become the moveable point on which they act. The humerus would then represent a lever of the third order, the fulcrum being the elbow, and the point of resistance the scapulo-humeral articulation, a lever, the action of which is great in proportion as the moving power is placed near to the moveable point. In dislocations from muscular power alone, it is the deltoid, which, during its contraction, represents the fulcrum of this lever, and the pectoralis major, latissimus dorsi, and teres major, act as the moving powers. It is thus evident, that this displacement is much more difficult of reduction, for, in this case, the length of the arm of the lever from the power is equal to the distance which separates the point of attachment of the deltoid from that of the pectoralis major, whilst in the preceding case it is equal to the whole of the distance which exists between the insertion of this muscle and the extremity of the elbow. When the head of the humerus thus escapes by the inferior part of the glenoid cavity, it rests on the anterior edge of the scapula, between the tendons of the long portion of the triceps and the subscapularis muscle, so that it cannot afterwards be displaced, excepting inwards, which is not unlikely to happen, in consequence of the obliquity and narrowness of the edge of the scapula.

"Dislocation of the humerus forwards is much less frequent than that downwards, although it is not difficult to carry the arm sufficiently far backwards for this bone to form an acute angle with the glenoid surface. The rareness of this accident appears principally to depend on the arrangement of the subscapularis muscle, and the pectoralis major and latissimus dorsi, &c., which can scarcely contribute to this kind of displacement, on account of their direction to the bone. Dislocation backwards has been observed; but this is more rare, for the trunk can scarcely allow the arm to be carried sufficiently forward for the articular surfaces to be inclined one on the other, so as to form an acute angle."

The practical remarks of the author are judicious, and the few notes of the translator are calculated to add to the value of the work. In conclusion, we recommend this manual to the student and to the practitioner; to the former, as a useful companion in the dissecting-room, and to the latter, as a valuable and convenient book of reference, comprehending most of the practical points, on which he may have occasion to refresh his memory, and some observations and suggestions which will probably add to his professional knowledge.

PHRENOLOGY.

THE brain of the man who was hanged on Monday last for murder, at Chelmsford, was yesterday examined by Dr. Forster and Dr. Venables, and by the report of the former, the organs of determinativeness and pugnacity were much developed. Destructiveness was not wanting; and, in general, there was a great preponderance of the animal over the intellectual and human faculties. Veneration large; and during life, he was a great quoter of scripture.

December 12, 1827.

WESTMINSTER MEDICAL SOCIETY.

Saturday, December 8, 1827.

THIS evening, Dr. Barry, who has been recently elected one of the presidents, officiated as chairman for the first time. He returned thanks to the Society in a speech of some length.

Mr. BENNETT rose and said, that he lamented the bad taste which, of late, had induced some members of the Society to attempt to establish a distinction between surgery and medicine. Such distinction might hold in a *trading* point of view, but, considered purely as a matter of science, the attempt to separate the two was absurd: it was therefore on this account, that he had chosen a subject for discussion, which would show the intimate and inseparable nature of medicine and surgery. He would entitle it, "*On the analogy and identity of the phenomena of external and internal disease.*" Mr. Bennett then proceeded to the inquiry, whether *all* diseases were not preceded by, or accompanied with, inflammation; such was the opinion of some pathologists, and he was disposed to agree with them. Mr. Bennett then enumerated the phenomena observable in the capillary system, under inflammation, first speaking of its ordinary and healthy functions. The [*effects* of inflammation were next considered, and the effusion of serum in the external cellular tissue, constituting œdema, shown to be merely the same result which ensues from internal inflammation, hence hydro-thorax, hydrocephalus, &c. The effusion of lymph, which takes place internally from acute inflammation, Mr. Bennett said, was also observable on the external parts of the body. In this manner did Mr. Bennett argue, generally, for the analogy of external and internal disease, which point, if clearly established, would of necessity lead to the proof of the assertion which he set out with, namely, that medicine and surgery are one and indivisible.

As might naturally be anticipated, from a subject so comprehensive, a debate ensued equally comprehensive. A *grand sortie* was made upon Mr. Bennett, with respect to his supposed assertion, that all diseases originated in inflammation. Dr. Johnson instanced many neuralgic affections, as contradictory of this opinion. Even Broussias, "the prince of pathologists," said Dr. Johnson, has admitted that an excitation of the nerves constituting *disease*, may exist without a disturbance of the vascular system. Mr. Lambert and Dr. Milligan held similar opinions to Dr. Johnson; the former gentleman remarking, that if the principle were admitted that all diseases were inflammatory, then the celebrated Sangrado was an excellent practitioner. He further observed, that serous effusion was not invariably the product of inflammation, but that it might and did arise from a state of congestion, and instanced the sudden effusion of serum into the ventricles of the brain with old people, in cold weather.

It should seem, however, that much "good indignation" was thrown away, as Mr. Bennett denied having assumed that *all* diseases were inflammatory; the *non-analogous* accidental tissues, probably, did not result from inflammation. He observed, that part might be inflamed during life, and yet exhibit no symptoms after death, as in the case of erysipelas. And it was further to be observed, that the appearances of redness would subside, in proportion as the post-mortem examination was delayed, which he had particularly remarked in the stomach of dogs poisoned by injecting croton oil into the jugular vein.

Dr. MILLIGAN, in remarking that the phenomena of inflammation were not the same in all parts of the body, and referring to the differences observable in inflammation of the various structures of the lungs, made some allusions to the stethoscope. Dr. Milligan affirmed, that no man could absolutely practise his profession successfully, without having recourse to this instrument.

Dr. Gregory *alone* was opposed to the stethoscope, but offered no reasons; Dr. Somerville, Dr. Johnson, Mr. Bennett, Dr. Webster, and other members, spoke strongly in favour of the stethoscope.

It was affirmed by Dr. Milligan, that the "Sage of Cos" was the first auscultator; but Dr. Johnson said, that he had upon this point referred especially to the works of Hippocrates, and found that only upon one occasion did he apply his ear to the chest, and this was in a case of hydrothorax; the patient was, at the same time, shaken about.

The Society parted at ten o'clock, with the understanding, that the subject would be renewed at the next meeting.

LONDON MEDICAL SOCIETY.

December 10.

Dr. Haslam, President, in the Chair.

Mr. Bryant, of Kennington, related a case of abscess within the cerebellum, which had lately occurred in his practice, and exhibited the morbid parts to the Society. It seems that the patient was for some time indisposed generally, but manifested no other symptom of disease within the head, than trifling pain, which was, in a great measure, overlooked. After a time, however, signs of serious mischief within the head were discovered; there was partial paralysis of the upper and lower extremities, with a degree of coma, and an oppressed state of pulse; under these symptoms the patient died. The appearances observed, on examining the head, were, that the longitudinal and other sinuses were much loaded with blood. On the posterior part of the tunica arachnoides, were small patches of adhesive matter; the pia mater was much thickened, and its vessels much engorged. The substance of the brain, generally, was more vascular than natural; the ventricles contained a large portion of fluid, and the plexus choroides was pale; the corpus callosum was much softer than natural, and presented many red points. Upon cutting through the nerves, with a view of removing the brain, at its base, the finger passed into an abscess, situated at the under part of the right lobe of the cerebellum, and about half an ounce of pus escaped. Mr. Bryant having related the particulars of the case, proceeded to offer some brief observations thereon. He thought it somewhat extraordinary, that such extensive disorganisation of the brain should go on without being more clearly indicated by symptoms. And he inquired whether this proceeded from the peculiar situation of the disease in the brain, or whether it was attributable to peculiarity of constitution—a less than ordinary degree of susceptibility.

Mr. Shirley spoke of a case, in which an abscess was also found in the cerebellum, unattended by symptoms indicative of so much disease; in this case, however, the *liver* was found to be extensively diseased, and he inquired of Mr. Bryant, with respect to the state of that viscus, in the case under consideration. Mr. Bryant said, that no other part of the body than the head was examined.

Dr. Shearman thought that this case bore strongly upon the doctrine of fever being dependent upon inflammation of the brain; here were clear evidences of inflammation having existed, and that to an intense degree; yet, as stated by Mr. Bryant, there were no signs of fever. If inflammation of the brain were the proximate cause of fever, it followed as a matter of course (provided the doctrine were true), that so much the more intense the cause, so would be the effect.

Dr. Clutterbuck entered into a long explanation of his doctrine respecting fever, which is ground that we scarcely need go over, it being so well known, and having so recently appeared in the pages of this Journal. Dr. Clutterbuck was very well replied to by Mr. Proctor, Mr. Weller, and Mr. Shirley, but nothing further, of material importance, was elicited.

The Society parted at the usual hour.

MEDICO-CHIRURGICAL SOCIETY.

December 11, 1827.

Benjamin Travers, Esq., President.

A paper by Mr. Wallace, of Dublin, on a peculiar form of inflammation of the eye, was read to the Society. During an attack of intermittent fever, iritis, with inflammatory affection of other parts of the eye, occurred in a patient under Mr. Wallace's care; for the former complaint this Gentleman administered bark, by the exhibition of which he was surprised at seeing the affection of the eye as well as the fever disappear. Mr. Wallace related several cases, some of which came under his notice and others under that of his friends, in which bark afforded speedy and decided relief for an inflammatory affection of the iris. The peculiarity of the complaint consisted in its being preceded by amaurotic symptoms, which continued even long after the visible signs of inflammation had ceased. In some cases there was intolerance of light, with inflammation of the choroid, sclerotica and conjunctiva, tenderness of the globe, or a severe pain in the region of the orbit. In others, the eye was insensible to the action of light, and the inflammation of the tunics slight. But in all the cases the iris was affected, and the affection was removed by the use of bark. It is important to observe, that the complaint in the eye supervened in almost every instance, after an attack of fever. In some cases mercury had been previously given without any benefit, and in others little or none had been used; merely aperient medicines, and in all bark

afforded equal relief. Excepting in one or two cases, no topical means had been employed. Powdered bark, in half-drachm doses, every four or six hours, or the sulphate of quinine, in the form of a mixture, was given.

Mr. Lloyd said, that he would ask Dr. Tweedie, whose experience in the treatment of fever must be very considerable, whether he had often met with this form of inflammation of the eye, or indeed any kind of ophthalmia after fever.

Dr. Tweedie replied, that he had not observed any case in which ophthalmia had occurred in a patient convalescent from fever. The cases which had just been read to the Society were undoubtedly deserving every attention, but he conceived that they could not be considered as an effect of the fever, but as arising from some epidemic which prevailed at the time.

The President observed, that Mr. Wallace, to his knowledge, had some years ago attended for a long time the eye infirmaries of this town, and subsequently paid considerable attention to this branch of practice, so that he was, in every point of view, competent to detect the minute forms of ophthalmic disease, and the accuracy of his descriptions might consequently be relied on. That bark would arrest some forms of inflammation there was no doubt, but the peculiarity in the present instance was, that in inflammations of so varied and mixed a character, the administration of bark was followed by the same marked benefit, thus rendering it more difficult to understand the action of the remedy. It was, however, to be borne in mind, that in some cases mercury had been freely employed, and the constitution almost saturated with it, and in others it had been employed as a purge, and the patient treated on the antiphlogistic plan; still as no topical means had been employed, the action of the bark was very striking, and the relief of the patient could only be attributed to it. The bark was administered in these cases in much larger doses than in rheumatic ophthalmia, where it was recommended to be given in small doses, combined with soda, and at short intervals. The information which had been communicated to the Society by Mr. Wallace, he considered highly deserving attention, and likely to add very much to our knowledge of the treatment of that form of disease to which it related.

After a few observations from Mr. Lloyd and Mr. Travers, the Society adjourned to Tuesday, January 8th.

ROYAL INFIRMARY, EDINBURGH.

"Second Fatal Case of Erysipelas supervening on the Removal of a Cancerous Ulcer from the lower and part of the upper Eye-lid."

There are few features in the present case to distinguish it from that which preceded it, except that the treatment was somewhat more active, though the progress of the disease to a fatal termination was still more rapid. Blood, it will be observed, was freely and frequently abstracted in this instance, but at a time when the intensity of the cerebral affection, by extorting the practice, also indicated that it was too far advanced to be controlled by depletion. Scarifications were also tried on the scalp, but they were so few, superficial, and made at so late a period in the course of the complaint, that no inference of the utility or insufficiency of the remedy could be deduced.

James Mitchel, aged 45, a tall athletic sailor, was admitted into the Hospital, under the care of Dr. Hunter, on the 11th of November, for a small carcinomatous ulcer, occupying about two-thirds of the lower, and one-third of the upper eye-lid, towards the external canthus. The ulcer presented the common appearances of cancer in the skin, being of a bright red colour in the bottom, with uneven elevated margin, and attended by pain of a lancinating kind, shooting from the part into the eye and its vicinity, and by occasional hæmorrhage from its surface. He stated, that about nine years ago, it commenced in a small warty excrescence, which, by alternately scabbing and ulcerating, has gone on gradually to produce the disease described. The interior of the eye, with the exception of a slight vascularity of the conjunctiva opposite the ulcer, was entirely free from disease; and he otherwise enjoyed good health previous to his admission. On the 16th of November the whole of the morbid parts was removed by Dr. Hunter, by passing a bistoury through the superior palpebra, and dissecting out the diseased structure with a scalpel and forceps in an extremely tedious and confused manner. One small vessel was tied; and a pledget of lint dipped in cold water applied over the wound.

17. Complains of a slight pain extending from the wound to the head; otherwise he has spent a good night; the pulse is as low as 48; the skin cool; tongue clean and moist, and bowels have been opened twice since the operation.

18. The pain which he now describes as of a lancinating character, though producing little uneasiness, having rested tolerably well in the night, still continues to shoot from the wound through the head.

Pulse 60; secretions regular, and appetite unimpaired.

19. Much the same in all respects, as represented in the preceding report; has rested well during the night; pulse sixty; bowels open; tongue rather whitish, and complains vaguely of general headach. Appearance of the wound such as one of its duration usually assumes.

20. States that the headach has increased, and disturbed him much in the night; pulse 82; tongue furring in the centre; has had two motions since last visit; aspect of the wound and temperature of the surface unaltered.

21. He has had a change for the worse since yesterday; complains of an aggravation of the headach, and of some pain in the abdomen; pulse 83; tongue more furred; skin hot and dry; and bowels scantily opened twice since yesterday. The wound presents a dark unhealthy appearance, around which there is an areola of an erysipelatous blush within the boundaries of the orbit. Ordered to be bled to twenty ounces; to take an ounce of castor immediately, to be followed by a purging enema, should the other medicine not speedily operate; and the wound to be covered with a poultice.

22. Considers himself relieved this morning, though his general appearance would indicate the contrary; the blood taken away yesterday is sizy, and buffed in one of the cups; pulse about 90; bowels opened four times by medicine; and pain of head, though less, there is a tendency to drowsiness. The wound looks much cleaner and healthier, but the erysipelas is still extending, being now diffused over one of the frontal muscles above, and the lower margin of the orbicular muscle below. Three or four superficial scarifications have been made over the eye-brow; the bleeding to be encouraged by stupes; infusion of senna, with tartrate of antimony, to be taken during the day; five grains of calomel at bed time, and an ounce of castor oil in the morning.

23. He was bled again yesterday to sixteen ounces, from which he experienced some relief; blood slightly buffed; much easier in the night; pulse 90; bowels have been freely opened, but attended with severe griping pains. Erysipelas still extends on the scalp and upper part of side-face; wound so much improved, that the poultice was discontinued for simple dressing; head to be well fomented, and the senna and antimony repeated.

24. Sixteen ounces of blood were abstracted yesterday; states himself to have rested tolerably well in the night; pulse 92; and bowels freely evacuated. The local appearances of the wound and erysipelas much the same as in the last report; and no alteration in the treatment has been announced.

25. On visiting him this morning, found him violently ill, and throwing up a large quantity of phlegm, probably the effect of the antimonial medicine which he had been taking; otherwise he states himself improved; but little reliance can be placed on his representations, which are vague and unsatisfactory, probably from the state of the head; pulse 94; bowels opened once; redness of erysipelas much abated; wound clean, and discharge healthy. Antimonial solution to be discontinued; beef-tea for food, and a colocynth pill at night.

26. Has spent a very restless night, which he attributes principally to pains felt in the joints of the hands and ancles; tendency to drowsiness much increased, with a slight imperfection of his articulation, and laborious breathing; pulse 72; bowels twice opened; and has taken some food. Erysipelas more diffused over the scalp, but the redness is much diminished; and the ulcer has a dry irritable aspect. Ordered to take a blue pill night and morning; and a large blister to be applied to the nape of the neck, to prevent, as Dr. Hunter stated, effusion into the ventricles of the brain.

27. The house report states, that his pulse having become sharp, and risen to 104 this morning, he was again bled to sixteen ounces; he has been quite incoherent during the night; tongue brown, and dry in the centre; has had several watery stools through the night; pulse at present about 90, feeble, and he breathes laboriously. Erysipelas has almost entirely disappeared, and the wound somewhat improved; ordered simple saline solution; and the poultice to be resumed over the wound and eye.

28. Constitutional symptoms much aggravated since yesterday, having been alternately in a state of coma and low delirium through the night; he is now conscious of questions proposed to him, and though complaining of no pain, his features and position are widely indicative of extreme distress, the extremities being drawn upwards, the mouth partially open, and the respiration performed with great difficulty. Pulse 92; tongue (with difficulty protruded) parched, and brown in the centre; bowels have been freely opened. Ordered a large blister to the nape of the neck; sinapisms to the feet; and a dose of castor oil to be immediately administered.

The coma increased during the day, and he died about one o'clock at night; no post-mortem examination of this patient has been publicly performed.

Scotus.

Edinburgh, Nov. 6, 1827.

THE FACULTY OF PHYSIC.

To the Editor of THE LANCET.

SIR,—Did not the discussion respecting the Faculty of Physic involve, in a considerable degree, the respectability and importance of the great body of your readers, viz. the general practitioners; and did not the principles promulgated in your Journal, tend to support that class, I might feel it necessary to make some apology for again claiming attention to the subject. I felt no surprise, Sir, to find a reply to my second letter, substantiating the charges preferred in my first against the Faculty of Physic; for, to have passed over in silence those proofs of the spirit which actuates that body, would have been tacitly to have admitted their truth, and the society, disrobed of its cloak of philanthropy, would have appeared arrayed in the garb of selfishness, and have received the obloquy which never fails to attend men, when they endeavour to compass private ends under the mask of public virtue; therefore, it is not to be wondered at, that the Associate should again attempt a reply, and to examine this reply, is the purpose of my present observations. It has been observed at the bar, that the less tenable the cause, the more confident is the advocate; and thus my opponent commences, by an affectation of superiority, "hoping to be brief," "it needing but little argument," &c. &c. Notwithstanding this boasted assumption, we find this considerably longer than his former reply. He proceeds to inform us, that "with dispositions not unkind," he regarded my attack as the "hasty expression of excited feeling;" now, this is language which I confess myself at a loss to understand. If a man publicly makes observations that are incorrect, or advances arguments that are untenable, he must abide the exposure of an antagonist, and the only courtesy that I am aware ought to be observed, is the refraining from *personal* observations. If my opponent is a private friend, I hope he still entertains for me the same "kind dispositions" which he did previously to the publication of my observations on a body of which he is one of the members. Passing on, we find your readers' attention solicited to a distinction which I have been pleased to overlook, viz. the division of the "circular" into several parts; first, an address to physicians; secondly, a declaration of the principles on which the association was founded; thirdly, the rules of the association; and fourthly, a representation of facts respecting the general state of the profession, condensed from a published work, &c. &c.—he proceeds: "It would have been but just in Mr. Simpson to have founded his charges on the avowed principles of the association, but with very slight notice of these, his proofs, as he terms them, rest on garbled passages, extracted from the last division of the circular, a section in which no purpose of the association is declared." Thus, Sir, I am accused of injustice in not founding my charges on the avowed *principles* of the association, but resting my proofs on garbled passages, extracted from the resolutions. Without making a remark on what resolutions are usually understood to embody, we will take the definition of the association itself from their circular, where we are informed that they have published, through the medium of Messrs. Longman and Co., a book to which reference may be made, as illustrative of the *principles* and *views* of the association; but, in the mean time, it has been thought right to give in the present circular, its principal heads, under the form of *resolutions*. "Then these resolutions contain the principal heads of a book, which is illustrative of the *principles* and *views* of the association," in order that no person who joins them may be able to allege, that any of the PRINCIPLES of the associates have been misrepresented or concealed." And yet, forsooth, I am accused of injustice, in not founding my charges on the avowed principles of the association, but on these resolutions, in which no purpose of the association is declared!!! He proceeds: "not content with confounding authorities so *dissimilar* and *unequal*, he extends his views to anonymous letters." Is not the association itself anonymous? "On turning to the letter, &c. &c., and on reading it through, I fail to discover a single expression to connect the writer with the Faculty of Physic." As a comment on this, I will extract a few lines from the letter alluded to:—"To promote this *desirable change*, (viz., to annihilate the general practitioner,) a certain number of independant physicians have formed themselves into an association, to which medical graduates of all universities are eligible, wherever situated." Again:—"The BENEFITS of becoming members of an independant body, like the 'FACULTY of PHYSIC,' on the one hand, and the disgrace of becoming appendages to a monopoly, like the College of Physicians, on the other, must be now apparent to the world." After reading the latter quotation, I will appeal, with confidence, to the candour of your readers, whether I was not justified in referring to this production as "a letter issued by one of their body?" Is it at all probable, that a man would speak in such high terms of the benefits accruing from becoming a member of an association and not be one himself? I will ask my opponent, whether he cannot now discover "a single expression to connect the writer

with the Faculty of Physic?" and whether I was not justified in extracting from it collateral evidence of the "designs of the Faculty of Physic?" The circular is a cunningly-devised and somewhat masked attack on the general practitioner, but the "Independent Physician" has, with an imprudent ardour and intemperate zeal, divulged the secrets of the conclave. To disown and condemn so dangerous an advocate was the only course left for the Associate. But I will ask any one, after having perused the circular and the letter of the "Independent Physician," whether one and the same spirit breathes not through them both? He now proceeds to rebut my proofs, and expresses his surprise that my first proof is directed to show, that the object of the Society is to remodel the whole medical profession, and designates it a new charge. Now I must beg leave to contend, that instead of being a new charge, that it comprehends both the others; for the practice of medicine being divided between the physician and general practitioner, then to remodel must mean to make some change in these departments. What that change is, the whole tenor of the circular will show to be to increase the physicians, and consequently to diminish the general practitioners. By whom is this remodelling set on foot? By physicians, a class of men *interested* in the change. I will ask, then, whether this charge of remodelling does not comprehend both the other charges, and of consequence is not a new charge. Although each department may want remodelling and readapting to the improvement of the times and the increase of intelligence, it does not follow that change should be subservient to the limited and interested views of a class of men, to the majority of whom any change would afford benefit.

To digress for a moment on the subject of medical legislation, I should say, that the public, not being at all competent to judge of the ability or knowledge of a medical attendant, they ought, therefore, to have some *test of fitness* in cases involving the health, happiness, and often the life of mankind. This test is not properly supplied by either the College of Physicians or College of Surgeons, and that supplied by the Company of Apothecaries is so *wholly* insufficient and improper, that it cannot fail to be alike injurious to the public and degrading to the respectable general practitioner. Common sense would teach us, that this test of fitness ought to be supplied by a competent tribunal, *uninterested* in the issue, and that the examination should include every branch of the healing art, without distinction.—Such a qualification would afford confidence to the public, and ensure respectability to the profession. My opponent, then, will perceive, that I entertain for the Apothecaries' Act the same opinion as himself, but upon very different principles: first, on public grounds, because it is not a sufficient guarantee of competency; secondly, on private grounds, because I consider the respectable part of the body to which I belong, degraded by being placed on a level with men who have never studied medicine as a science, but empirically; whose habits and acquirements are more suited to manipulation than scientific research. But on what principles does the Associate condemn the Apothecaries' Act? On those pure philanthropic principles which are propounded in the circular? Oh! no; but because it gives to the apothecary "a complete monopoly of the department of general practice." I would ask, in which principle the philanthropy exists? After a great deal of argument on the propriety of remodelling the profession, we come to a denial that the special efforts of the Association have any such direction, but that is merely a conjectural anticipation. A pretty strong conjecture, I must confess, beginning, "there cannot be a doubt." Proceeding with my proofs, aware of the weakness of his argument, he takes advantage of the distinction which he had, at the outset, laboured to establish between the principles and resolutions, which I have shown to be futile, and says, "abandoning the declaration of principles by which, in justice the Association ought to be tried, he quotes a passage from the supplementary part of the circular." I had remarked, in my last letter, that from the use of the words in the circular, of "the *healthy* state of the profession in France, and the *unhealthy* state in England," it obviously followed, that the proportions and divisions which existed in France were proper, and those in England improper. The Associate remarks on this, "how such a conclusion follows, my logic must explain:" and, instead of rebutting it, he refers your readers to the whole passage, that they may interpret it more justly. I will ask my opponent, if he met a friend, and on examination found his animal functions in a *proper* state, whether he would not say, that he was in a *healthy* state? or, *vice versâ*, if he found them in an *improper* state, whether he would not say, that he was in a *unhealthy* state? He asks, has the association founded on this any proposition? Have they not agreed that petitions to the Crown, *founded* on the resolutions, should be presented, with a view to ulterior proceedings? He answers, "by no means; they contend ONLY for free competition, from which their present restrictions debar them." Then, I ask, why not be content with reforming the College of Physicians, the *fons et origo mali*, and thus

place themselves in a condition for a free competition. He again refers to the terms healthy and unhealthy, "the fotmer being the result of unbiassed choice, the other of forced restriction," and denominates them, "expressions of fact and not of opinion." Yes, but if the fact be that one state is forced and the other unbiassed, it is not difficult to judge on which side the opinion will fall. But I deny that the difference of the proportions and divisions of medical attendants which exist in France, compared with England, is the result of any legal restrictions. Are not the causes to be sought for in the difference of the habits and manners of the people? The fact is, in this country, the respect for the *name* of physician is fast passing away, and will soon be entombed with that formerly entertained for those alike two important appendages, the wig and cane of former times; the public look to talent in the medical profession, and care but little in which division it is found. Of this, I believe, the Associate to be fully aware, for on advocating the merits of the respectable general practitioner, and considering him, from his education and opportunities of acquiring knowledge, as fully entitled to the confidence of the community as the physician, I am told, "the relative merits of the respective branches is happily not here the question."

Having thus far entered into the subject at issue, I will add a few words, in explanation, as regards myself. My opponent says, he doubts not I shall, on *further* reflection, admit that the physicians are fully warranted in seeking free competition.—Surely, if he has attentively read my letters, he will perceive I have unequivocally advocated their cause to that extent. He says, if I have read some tracts, to which he has referred me, I shall be sensible that he is no enemy to the general practitioner. From not having those tracts immediately at hand I have not referred to them, but he must perceive, at the conclusion of my last letter, that I acquit him, personally, of any hostility to the general practitioner. But to the Association, with a slight transposition, I may apply the words of Sheridan:—"Though in the tablet of the volume of their minds there may be some marginal note of reforming the College of Physicians, the whole text is occupied with the destruction of the general practitioner."

I am, Sir, yours, &c.

W. Simpson.

Hammersmith, Oct. 14, 1827.

ERYSIPELAS.

To the Editor of The Lancet.

Sir,—Having lately read in several Numbers of your widely-circulated and valuable Journal, and particularly in the number, dated the 24th Nov. last, (which came to me this morning, Dec. 3d,) the discussions of the Medico-Chirurgical Society of London, of which I am a member, on Mr. Lawrence's paper on Erysipelas, together with the reply of that able and learned author to such objections as had been made by different members to his views of treating that disease; I am induced to transmit to you some remarks, hastily written, on that subject.

You well know, Sir, that in June, 1825, I published a small 8vo. work on the disease, which had produced a most alarming fatality amongst the artificers of the Plymouth Dock-yard, which disease had been erroneously called in the newspapers, "*The Plymouth Dock-Yard Disease*," and compared by its fatality to the plague itself.

To that disease, which, in the majority of instances was distinctly traumatic erysipelas, I ventured to give the name of "*irritative fever*;" because the same sort of fever, delirium, and death followed in patients who were not affected with erysipelatous redness of the skin. I preferred, therefore, the name of irritative fever to traumatic erysipelas as being more expressive, because by the latter we mean cutaneous disease somewhere, which the former term does not necessarily imply.

You also know that I had no official connexion with the dock-yard, and consequently no right to meddle with its affairs. The cause of humanity, however, and the professional character of the town, in which I practised, awakened my attention and loudly called for the account which I have ventured to publish of this fatal and alarming disease.

The official documents were intrusted to my charge for publication by Mr. Dryden, the only surviving officer of the establishment, after Dr. Bell's death, and without this aid and the expenses of publication, solely incurred by myself, neither the profession nor the public would have ever had any authentic account, in all probability, of this disease, which, at the time, created a greater sensation in the country than any other which had occurred for a long series of years. Your excellent review of my book on Irritative Fever, and the many long critiques upon it in other publications, have extensively drawn the attention of medical men to its contents. I am the more surprised, therefore, after reading your reports of the late discussions on erysipelas

at the Medical and Chirurgical Society in London, *not* to find some notice, or mention, made of this book by Mr. Lawrence, who, by your account, has read before the Society a most elaborate, long, and practical paper on erysipelas, availing himself obviously of the information given in my book, and yet studiously avoiding any mention of it; and when his attention was drawn to it by an anonymous speaker on the 27th October, then he was silent on its contents. From one of two motives must this silence on the part of Mr. Lawrence have arisen:—1st. Either that he is, or was, ignorant of the work itself; 2ndly, or that he inculcates a practice opposite to that advocated in my book.

After the numerous reviews of the book in question—after having directed my bookseller to present Mr. Lawrence with a copy of it—after nearly twenty years acquaintance with him—I cannot suppose Mr. Lawrence altogether ignorant of the existence of such a book; and if he adopted and recommended a practice diametrically opposite to that which the deduction from this book justified, why did he not candidly notice it, admit the value of the cases, and reject the reasoning on them? To say the least of the cases, and not a word on the remarks accompanying them, as a body, occurring under eventful circumstances, they will be found more useful, I will venture to affirm, in settling the disputed treatment of erysipelas, than any given number of cases ever laid before the public. I took infinite pains to give the histories of them correctly and fully, both from Mr. Dryden's records and from the individual testimonies of the friends of the deceased artificers. Mr. Lawrence has acted, to say the least, therefore, with great partiality in refusing all notice of these most important cases, whilst writing expressly on the subject of them.

As a professor of surgery—as a hospital surgeon—as a master and director of young men—as the author of an elaborate paper, written expressly, according to his own statement, with the view of settling and determining the proper treatment of a disease about which medical men differ widely in opinion—ought he not to have brought forward the published opinions and practice of other medical men, and blended or contrasted them with his own? We all know the powers of eloquence and argument, and that Mr. Lawrence, with these mighty engines at his command, may make the worse appear the better still. But these are not required in the sober practice of physic—truth we want, simple truth—not sophistry. Mr. Lawrence might have the power of making a practice successful in his own hands, but if a like practice fail on repetition with others, it will fall into that disrepute and neglect ever attendant on ill success.

Bloodletting, which Mr. Lawrence has so strenuously set forth, received the fairest trial with some of the Dock-yard patients, and it failed in toto. No person, I believe, would be hardy enough to attempt the repetition of a similar practice, on the recurrence of similar cases, not even on the high authority of Mr. Lawrence, nor of any other person whose theories and doctrines are at variance with experience and common sense. If Mr. Lawrence's paper, the purport of which by the way I can only glean from THE LANCET, resolves itself into a question of experience, surely the testimonies of other medical men ought to be weighed in the same scale with his own, and the "*graduations of the antiphlogistic treatment*," so much dwelt upon, estimated by all. It was not surprising, therefore, that Mr. Lawrence should have failed in converting the members of the Medical and Chirurgical Society to his own peculiar views and opinions, although he did every thing, I doubt not, which eloquence and ability could command, when his reasoning was opposed to the facts and experience of other practitioners. The remarks of the President, Mr. Travers, of Dr. Birkbeck, Dr. Babington, Mr. Guthrie, Mr. C. Hutchison, Brodie, Cooper, and others, deserve much weight and consideration. These authors have had great experience; have eyes, and can see,—reasoning faculties, and can employ them, perhaps as well as Mr. Lawrence, and yet dissent from his doctrines. It is remarkable that Mr. C. Hutchison, to whom praise is given for first suggesting the practice of incisions in erysipelas phlegmonodes—a practice which Mr. Lawrence professes to copy from him—should also differ with Mr. Lawrence on the best way of making them; the former preferring many small incisions, from one inch to one inch and a half, and the latter, one uninterrupted incision of fourteen inches in length. I would infer, therefore, that Mr. Lawrence has most lamentably failed in convincing others that his practice is the best which can be employed for the cure of erysipelas. According to his views, erysipelas is inflammation, and the remedy, antiphlogistic measures "*graduated*"—a most pernicious doctrine, which I have elsewhere combated. One of these "*graduated measures*" for erysipelas we should wish to have sent down to Plymouth, where the disease prevails, lest that we might overdose our patients. In a word, his practice rests on the following means—1. Bleeding; 2. Incisions.

I have already said so much about the former, in the book on Irritative Fever, to which I beg to refer the reader, that I am unwilling either to recapitulate, or amplify

the subject at present. No medical man of experience, can doubt the necessity of bleeding some patients with erysipelas, particularly the gross and full, whilst every person would hesitate to bleed thin and cachectic people.

Erysipelas, like gout and continued fever, will run a certain course. It cannot be "*put out*," like the flame of a candle, with an "*extinguisher*," nor "cut down *with the lancet*" like an olive branch. These figurative expressions, ill-suit the sober and variable practice of physic.

About incisions, however, I would beg to observe, that we have given rather too much praise to Mr. C. Hutchison, not for adopting, but for originally suggesting, the practice. Incisions were taught by Celsus, recommended by Pott, and followed by the common shepherds of this country, for the cure of that form of erysipelas usually called phlegmonodes.

Celsus says, as I have elsewhere stated,* "Quidquid aridum est, et intentione quadam proximum quoque locum male habet, usque sanum corpus concidere." Celsus, p. 196.—And again, when speaking of various means, gives a preference to fire, "Nihil melius est quam protinus adurere." Lib. v. p. 28.— Pott elegantly observes, "When the inflammation is of this kind (the erysipelatous) the quantity of matter formed is small, compared to the size and extent of the tumour; the disease is rather a sloughy, putrid state of the cellular membrane, than an imposthumation; and therefore, *the sooner it is opened the better*;" if we wait for the matter to point, we shall wait for what will not happen, at least, not till after a considerable length of time, during which, the disease in the membrane will extend itself, and consequently, the cavity of the sinus or abscess, be thereby greatly increased.† And again he speaks of this practice more decidedly:—"What assistance art can lend, must be administered speedily; every minute is of consequence; and if the disease be not stopped, the patient will sink."—"Here is no need for evacuation of any kind; recourse must be immediately had to medical assistance; the part affected should be frequently fomented with hot spirituous fomentations; *large and deep incisions* should be made into the diseased part, and the applications made to it should be of the warmest, most antiseptic kind." Page 59.

These remarks were published above forty years since, and consequently, prior to all modern claims. When the above practice was carried into effect on Reeves,* I did not recollect this passage in Pott's works, which, with the preceding and following remarks therein, deserve the attentive perusal and adoption of all practitioners. We ought not hence to infer, that incisions should not be made in every case of erysipelas, but only in those desperate instances, which the common plan of treatment will not alleviate.

In my work I have also shown that shepherds, from time immemorial, have practised incisions in the disease called "*Udder ill*," which affects ewes' udders in the lambing season, and resembles erysipelas phlegmonodes. The original suggestion of this practice must not therefore be conceded to Mr. C. Hutchison, although his merits cannot be denied for successfully repeating it on the sailor in the Deal Naval Hospital. The advantages of incisions are threefold: 1st. The loss of blood locally. 2d. The removal of cutaneous tension. 3d. The escape of ill-conditioned fluids underneath. In reviving an old and severe practice, care ought to be taken in not generalising it too commonly in cases which would do well without it.

A discussion also arose whether the length or number of incisions would be preferable. Truth never lies in extremes. It is not wonderful that two patients should have died after incisions, the one from hæmorrhage, and the other from the shock communicated to the nervous system; if the incisions were fourteen inches in length, as stated in THE LANCET, such a cut would be characteristic of boldness, but not of safe surgery. That length can never be required for the cure of erysipelas.

I intended to have accompanied this communication with the recital of some cases of erysipelas, which have lately occurred in my own practice, but my time shortens, and other occupations press on me, whilst this paper lengthens, so that I shall be obliged to postpone for the present some additional facts, intended as a commentary upon this subject.

Before I conclude, I ought to state my respect for the attainments and talents of Mr. Lawrence, and my unwillingness to oppose his views and doctrines from any other motive than that of checking an evil likely to emanate from his highly influential example. With many thanks to yourself,

I remain, Sir,
Your obedient humble servant,
JOHN BUTTER.

Plymouth, Dec. 3, 1827.

* See Irritative Fever, pp. 112-228.

† Pott's Surgery, vol. iii. p. 58. Anno 1783.

* See Irritative Fever, p. 101.

ST. GEORGE'S HOSPITAL.

CASE OF POISONING BY OXALIC ACID.—VENESECTION.—INFLAMMATION OF THE BRAIN.

W. K., a muscular man, 21 years of age, was brought into this Hospital on Tuesday morning, the 15th of November, at seven o'clock; having taken, as it was said, an ounce of oxalic acid: he was placed under the care of Dr. Hewett. Previously to his admission he had vomited frequently, and had brought up a quantity of blood; the stomach-pump, however, was used by the apothecary, and the stomach was completely emptied of its contents; warm water was first injected, and afterwards a solution of the carbonate of magnesia. The patient was then put to bed, complaining of great pain in his stomach, and was ordered to take half a drachm of the carbonate and one drachm of the sulphate of magnesia, with an ounce and a half of almond mixture every three hours.

14. The patient has passed a restless night, complains of great pain about the stomach, and tenderness on pressure; he has vomited several times, the pulse is 110 and sharp, tongue white. Sixteen ounces of blood ordered to be drawn from the arm, and the mixture to be continued; soon after the blood-letting, the arm, above the elbow, became swollen and exceedingly tender. In the evening fourteen leeches were applied to it, and after the bleeding had ceased, cold lotion was kept constantly employed.

15. The man has passed a bad night, the pulse is 120 and wiry, the tongue is white and dry, the bowels have been opened, and some blood was passed with the stools. He complains of violent pain in his head, is very thirsty, lies upon his back, with his knees drawn up very high; the abdomen is exquisitely tender. Sixteen ounces of blood were taken from the left arm, and he was ordered to continue the mixture. The right arm is much swollen, and is very tender: cold lotion to be continued.

16. The pain in the abdomen is something better; the tongue is white, the skin very hot, the respiration is difficult; the pulse is 110 and hard; the man has a desire to cough, but cannot for the pain in his side; the bowels are open; he was again bled, to the amount of 12 ounces; and twelve leeches were applied to the abdomen; the blood drawn yesterday was both buffed and cupped; his arm continues exceedingly tender, but is not quite so much swollen.

17. The man has had rather a better night; the skin is less hot, the pulse is 98, and softer; the pain in the abdomen is not so great, nor has he so much pain in his side as yesterday; he has a slight cough; he was ordered to take an ounce and a half of the saline mixture, with half a drachm of the ipecacuanha wine every four hours.

18, 19. The patient remains in the same condition, but has had several slight rigors; the arm continues inflamed.

20. This morning he is much worse; has been very restless, and complains very much of his head; the pulse is quick and tremulous.

In the afternoon he became delirious, and soon after expired.

Post Mortem Examination.

Head.—The only morbid appearances observable here, were, that the brain, when sliced, presented more bloody points than natural, and some turbid serum was found in each lateral ventricle, and also at the base of the brain.

Thorax.—The right pleura pulmonalis was covered with a layer of coagulable lymph, which was easily detached, and there were no adhesions of the pleuræ. The outer surface of the lungs of the left side was healthy in appearance. Both the lungs when cut into were found to be loaded with blood.

Abdomen.—There were slight evidences of inflammation having existed in the peritonæum generally: the mucous membrane of the stomach and duodenum was more vascular than natural; and this appearance was observed in a less degree throughout the whole alimentary canal.

The cephalic vein was traced from the bend of the elbow upwards, and was found to be inflamed to a considerable extent; at about five inches from the bend of the elbow there was a small quantity of what Dr. Hewett styles in his case-book—"*Laudable Pus.*"

CASE OF STRANGULATED SCROTAL HERNIA, WITH THE OPERATION BY MR. ROSE.

Mr. Rose performed the operation for strangulated scrotal hernia, on Wednesday evening, the 5th instant, under the following circumstances:

The patient, a muscular man, 22 years of age, was brought into the Hospital on Tuesday evening with a swelling in the left side of the scrotum, and the account which he then gave was, that whilst in the act of wrestling a few hours previously, he found something give way, and he had much pain in the left groin: the bowels had been open on the day previously. Soon after his admission he was put into the warm bath and the taxis was applied, but without success: there was not at this time, as we under-

stand, any tenderness of the abdomen or urgency of symptoms, and therefore he was placed in bed and allowed to remain for the night, without any further means being adopted. At noon, the next day, we found that the man had been removed from the warm bath in which he had been again placed by direction of the house surgeon, who now bled him from the arm to syncope,* and again had recourse to the taxis without effect. The tumour was of the size of a small melon, somewhat tender on pressure; the integuments not discoloured. The man had vomitted once or twice in the night, and the abdomen was now slightly tender: there was no hiccup or anxiety of countenance; the pulse was quick. On further questioning him we learned, that until within the last twelvemonths he had worn a truss from his infancy, having always had a slight irreducible swelling in the left groin; but it had never been so large, or "come down," as on the present occasion.

Mr. Rose, who now saw the patient, promptly decided upon the propriety of the operation, which was accordingly performed, by making a longitudinal incision through the integuments almost the whole length of the tumour, then cautiously dividing the fasciæ, and opening the sac, exposed a large portion of omentum, and under it a knuckle of intestine of a dark chocolate colour.

The stricture, which appeared to be situated at a short distance above the external abdominal ring, was readily divided upon the finger by means of a bistoury; the gut was then easily returned, but the omentum being found coherent to the sac (by adhesion of long standing) was allowed to remain. (This adherent portion of omentum probably constituted the irreducible swelling, which had existed previously to the descent of the gut.) The edges of the wound were approximated by means of three sutures and strips of adhesive plaster, the man placed in bed; to take one drachm of sulphate of magnesia in an ounce and a half of peppermint water, every three hours.

On the following day, the pulse being quick and hard, and the abdomen tender on pressure, sixteen ounces of blood were taken from the arm, and twenty-five leeches were applied to the abdomen; he was directed to continue the mixture. The bowels had been relieved twice or thrice during the night. From this period to the 10th of December nothing material had transpired; the venesection effectually subdued the febrile excitement, and the patient was in every respect doing well.

* He bled the man in a *recumbent* position, by way of favouring syncope!! What a pity that so much light should be hidden under a BUSHELL!

GUY'S HOSPITAL.

OPERATION OF TYING THE SUBCLAVIAN ARTERY, BY MR. BRANSBY COOPER.

THIS operation was performed on Tuesday, Dec. 4th, by Mr. Bransby Cooper, on a middle-aged man, affected with axillary aneurism. There was a most crowded assemblage collected to witness this *grand spectacle*:—the operation was certainly effected in a masterly style. Although we cordially concur with the adage *sat cito, si sit bene*, yet where celerity can be combined with safety, as it was in the present operation, it must command admiration. The ligature was passed round the artery in somewhat less than a quarter of an hour: the wound dressed, and the patient removed from the theatre in about twenty minutes. One silk ligature, only, was used and applied by means of the common aneurismal needle, without the slightest difficulty: the pulsation of the tumour immediately ceased on tying the artery.

We shall carefully notice the progress and result of this case.

AMPUTATION OF THE MAMMA.

Mr. B. Cooper performed this operation in consequence of scirrhous disease, affecting the breast of a female, 43 years of age. Nearly the whole mass of the gland was affected, and it was removed by means of two oblique elliptical incisions through the integuments, and subsequent dissecting away, of the diseased mass.

TO CORRESPONDENTS.

Z. is in error.

The complaints of THE MEDICAL STUDENT, shall be noticed.

The Letter of Dr. BARRY, relative to Mrs. Denmark's case, has been received.

Other Correspondents must stand over.

We are to have a *legal* consultation with Mr. GUTHERY, in the Court of Common Pleas, Westminster, next TUESDAY; on which occasion, the operation of DEPRESSION will be performed on the "modest author," by Mr. BROUGHAM.